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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No.	KIHNJ40295
First Inventor or Application Identifier	Kihn
Title	Momentum Investment Systems...
Express Mail Label No.	EL622422302US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

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   - Descriptive title of the Invention
   - Cross References to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to Microfiche Appendix
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   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
3. [X] Drawing(s) *(35 U.S.C. 113)* [*Total Sheets* 40]
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   a. [X] Newly executed (original or copy)
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5. [ ] Microfiche Computer Program *(Appendix)*
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ACCOMPANYING APPLICATION PARTS

7. [ ] Assignment Papers (cover sheet & document(s))
8. [ ] 37 C.F.R.§3.73(b) Statement *(when there is an assignee)* [ ] Power of Attorney
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STATEMENT CLAIMING SMALL ENTITY STATUS (37 CFR 1.9(f) & 1.27(b))--INDEPENDENT INVENTOR

Docket Number (Optional)
KIHNJ40295

Applicant, Patentee, or Identifier: John Kihn

Application or Patent No.: _____

Filed or Issued: _____

Title: Momentum Investment Systems, Processes and Products

As a below named inventor, I hereby state that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees to the Patent and Trademark Office described in:

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John Kihn		
NAME OF INVENTOR	NAME OF INVENTOR	NAME OF INVENTOR
John Kihn		
Signature of inventor	Signature of inventor	Signature of inventor
June 24 2000		
Date	Date	Date

TITLE: Momentum Investment System, Process and Product

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to the assessment and management of financial assets and, more particularly, to systems, processes and products involving investment vehicles, particularly, mutual funds and the like.

Related Applications

The present application is a continuation-in-part of earlier applications: Serial No. 09/426,956, filed on October 26, 1999, for Universal Asset Class Benchmark System & Process; and Serial No. 09/495,717, filed on February 1, 2000, for Real Time Benchmarking Of Investment and Financial Assets. The sole inventor in both of these applications is John Kihn, the sole inventor in the present application.

The Prior Art

As of the year 2000, the mutual fund industry is one of the fastest growing financial industries in the United States. Investment in mutual funds often is preferred over investment in individual stocks and bonds because of four critically desirable characteristics: (1) broad diversification; (2) professional management; (3) liquidity; and (4) convenience.

A mutual fund is a financial intermediary, which sells shares to the public and invests the proceeds in financial assets including (1) stocks, (2) bonds and (3) cash financial securities. Obviously, a fund's profit and loss statement reflects interest, dividends and capital gains on one hand, and costs, expenses and capital losses on the

other hand. Ordinarily, highly skilled and highly paid management and research services are among a mutual fund's largest expenses.

Obtaining higher rates of return is a preeminent objective of mutual fund management and research. According to "portfolio theory", as developed by economists, every investment may be characterized by two measures – expected return and risk. R. Brealy, An introduction to Risk and Return for Common Stocks (1969). It is axiomatic that risk and expected return are correlated: the higher the risk, the greater the expected return; the lower the risk, the smaller the expected return. J. Lorie and M. Hamilton, The Stock Market: Theories and Evidence (1973).

Efforts to obtain higher rates of return have focused on technical analysis and fundamental analysis. Technical analysis theorizes that buying and selling patterns in financial markets are random occurrences that largely depend on investor psychology, without any predictable connection between future and past stock market data. Fama, Efficient Capital Markets: A Review of Theory and Empirical Work, 25 J. Finance 383 (1970). Fundamental analysis theorizes that stock prices are correlated with corporate earnings, and predictability depends on the availability of information or interpretations of information about relevant data. Cohen, Zinbarg & Zeikel, Investment Analysis and Portfolio Management, 739 (1973). Technical analysts "study past prices" and "buy stock", whereas fundamental analysts "study reports" and "buy companies". Sunny J. Harris, Trading 102: Getting Down To Business (1998). Neither technical analysis nor fundamental analysis, however, has provided a favorable edge in the assessment of future value of financial assets.

Much of both technical analysis and fundamental analysis relies heavily upon the mathematical procedure known as "indexing". Simply stated, indexing merely means collecting and analyzing financial information about a group of financial assets and deriving there from quantitative measures that are thought to be useful in assessing value. Widely known and used daily indices include (1) the Dow Jones Industrial Average, which is calculated from about 30 "Blue Chip" stocks, (2) the Standard & Poors 500 Index, which is calculated from 500 stocks, (3) the AMEX Market Value Index, which tracks the average of stocks traded on the American Stock Exchange, and (4) the NASDAQ Composite Index, which tracks all of the stocks traded on the National Association Of Security Dealers exchange. The problem is that most indices are based upon historical assumptions and/or rules that cannot be guaranteed to apply realistically at any particular time.

As will be described in more detail below, the present invention relies upon measures that are more properly considered to be benchmarks than indices. The terms index and benchmark often are used somewhat interchangeably. However, strictly speaking a benchmark is commonly more of a reference within a localized process, while an index is more commonly viewed as a generally applicable statistical term. Webster's defines benchmark as "a standard or reference by which others can be measured or judged", and index as "a number derived from a series of observations and used as an indicator or measure". Statistics textbooks more specifically define an "index number" as "a single figure that shows how a whole set of related variables has changed over time or differs from place to place". The present description uses benchmark in its more

restricted sense to refer to a measure in the relatively restricted context of the present invention.

Portfolio/Fund Level Data

A critical element in the program of the present invention is publicly available portfolio data. There are at least two portfolio level fields of data (portfolio content and portfolio date) and two security level fields of data (CUSIPs or some other unique identifier and the number of shares for equities or par amounts for bonds). A CUSIP is a unique identifier. This data is generated from one or more of the following sources: Securities and Exchange Commission ("SEC") filings (these are referred to as "EDGAR filings") or the equivalent filings in other countries (i.e., in the case of those funds not registered in the United States). In the United States, all publicly traded funds are required to file at least semi-annual statements (i.e., one annual and one mid-year statement). Publicly traded funds issue annual, semi-annual and/or quarterly statements that provide a dated detailed list of securities comprising each portfolio/fund. Many mutual funds complexes, insurance companies, banks, etc. give detailed lists of the contents of their portfolios to various data providers. There are several data providers that compile security level data listings from both publicly and privately held portfolios/funds. Essentially these data providers use various combinations of the above sources to compile these listings.

Asset Class Data

Depending on the benchmark being constructed, certain fields are matched with portfolio data. For example, certain equity portfolio data will require a description of the security, sector code (possibly based on the Standard Industrial Classification (SIC) code), etc. A high yield corporate bond portfolio might additionally require coupon, maturity, call schedule, etc. This general set of data is designed to completely encompass the portfolio data and is referred to as the Asset Class Data. Depending on the asset class(es) the securities are drawn from, there are typically several firms that provide this

type of data to those firms that manage the portfolios being benchmarked. Several brokerage firms (e.g., Merrill Lynch and Salomon/Smith Barney) as well as several firms unrelated to the brokerage and financial management industry provide this information (e.g., J.J. Kenny, which is owned by Standard and Poors, or EJV/Bridge).

Portfolio Tracking Data

Related to the Portfolio Data is the Portfolio Tracking Data. These values are used to aid in tracking those portfolios that are used to construct the benchmarks and used to determine expenses charged to shareholders. This data is currently available from the following two primary sources: (1) Lipper provides portfolio level data (e.g., Net Asset Values ("NAVs"), returns, distribution yields, management fees, total expenses, defined asset groupings, etc.) for all publicly traded open-end funds, closed-end funds, annuity/insurance products, etc. Of particular importance are the NAVs and financial performance data. (2) Morningstar provides portfolio level data (e.g., Morningstar 3 year, 5 year, and 10 year ratings, management fees, total expenses, as well as defined asset groupings), which in many cases closely mimic those of Lipper.

Mutual Fund Performance

Studies of current mutual fund performance suggest the following: (1) Investors chase returns, namely, the summation of dividend distributions and capital appreciation. (2) Some fund returns can be slightly predictable. That is, past winners tend to continue to win and past losers tend to continue to lose. (3) The persistence in these funds is due almost exclusively to momentum stocks. In other words any persistent fund performance is due to holding stocks, not trading them in and out, as one would expect an "active" manager to do. Therefore, the appearance of superior "active" management is due to a

basic buy and hold strategy not active trading. (4) There appears to be less persistent skill in the mutual fund industry than one would expect. In short, the mutual fund industry's record often is not impressive. (5) Therefore, the costly professionals hired by mutual fund firms often are not warranted. See: "Cochrane, John H., New Facts in Finance", NBER Working Paper No. 7169, June 1999. P. 1-42.

SUMMARY OF THE INVENTION

A primary object of the present invention is to provide mutual fund systems, processes and products that are characterized essentially by a program which can be represented by pseudo-code defining the following steps: (a) selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns by maintaining momentum during an existing first period of time of relatively long duration; (b) selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration; (c) establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and (d) tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio. Preferably, the first designated period of time is relatively extended, e.g. no less than two years, and the second designated period of time is relatively restricted, e.g., no more than two years. It is to be understood that each of the two periods of time extend backwardly from the same point of reference, one partially overlapping the other.

In the "normal" passive indexing approach, the benchmark/index is taken as a given (i.e., the benchmark is typically exogenous to the system). In some cases, a

manager determines the benchmark/index. In the present case, indexing is not merely an outcome of endogenous forces. Rather, it is determined by exogenous forces (e.g., different portfolio managers, rating services, data availability, etc.) as well. The program herein takes one or more real snapshots of one or more real portfolios, and then establishes a benchmark accordingly.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the present invention, reference is made to the following detailed specification, which is to be taken with the accompanying drawings, wherein:

Fig. 1 is a flow diagram that generally illustrates the systems, processes and products of the present invention;

Figs. 2.1 to 2.2 are a composite listing of equity funds, ranked by estimated net inflows over a one year period, which constitute selections from an asset class that is identified in accordance with the illustrated example of the present invention;

Figs. 3.1 to 3.5 are a composite listing of fixed income funds ranked by estimated net inflows over a one year period, which constitute another asset class from which selections alternatively could be made in accordance with an alternative example of the present invention;

Figs. 4.1 to 4.2 illustrate a listing of the equity funds of Figs. 2.1 to 2.2, ranked by estimated net inflows over a one-year period (calendar year 1999);

Figs. 5.1 to 5.6 illustrate a Microsoft Excel spreadsheet for processing data in accordance with a step of the present invention;

Figs. 6.1 to 6.6 illustrate another Microsoft Excel spreadsheet for processing data in accordance with a next step of the present invention;

Figs. 7.1 to 7.8 illustrate a further Microsoft Excel spreadsheet for processing data in accordance with a next step of the present invention;

Figs. 8.1 to 8.7 illustrate still another Microsoft Excel spreadsheet for processing data in accordance with a next step of the present invention; and

Figs. 9.1 to 9.5 illustrate another Microsoft Excel spreadsheet for processing data in accordance with a next step of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

General Description – Fig. 1

A flow diagram illustrating the system, process and product of the present invention is shown in Fig. 1 as including the following steps:

Step 1 - as shown in blocks 20, 22, selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns by maintaining momentum during what may be defined as an existing first period of time of relatively long duration. (This first period extends backwardly from a specified reference point in time.) This selection identifies asset classes that are expected to outperform.

Step 2 - as shown in blocks 23, 24, selecting, from the aforementioned restricted number of asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during what may be defined as an existing second period of time of relatively short duration. (This second period extends backwardly from the specified reference point of time and partially overlaps the first period.)

Step 3 - as shown in blocks 25, 26, establishing and optimizing (weighting and filtering) a benchmark based upon portfolios of assets 23, 24 to identify a moving portfolio having calculated momentum.

Step 4 - as shown in blocks 28, 30, tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

Pursuant to Steps 1 through 4, above, issuing securities, purchasing portfolio assets and selling securities as shown in blocks 32, 34, 36.

In support of the calculations herein, the following is to be noted: (1) portfolio data (i.e., CUSIPs or some other unique identifier and share amounts) must be available for each portfolio meeting the criteria of Steps 1 through 4; and (2) any fund/portfolio should have some unique identifier (e.g., a five character Nasdaq® symbol – National Association of Securities Dealers Automated Quotation System). The aforementioned unique identifiers are needed for confirming the identity of the fund/portfolios in order to process the various sets of data in a computer.

There now follow detailed descriptions of the steps of the present invention.

Step 1 - Identify asset classes that are expected to outperform
Fig. 1-blocks 20,22; Figs. 2.1-2.2, 3.1-3.5, 4.1-4.2

Figs. 2.1 to 2.2 are an example of a composite listing of equity funds, ranked by estimated net inflow over a one year period. Essentially, the most promising asset class will be that which has had the greatest net flows over the last year or more.

Figs. 3.1 to 3.5 are another example, in the form of a composite listing of fixed income funds, which constitute other asset classes from which selections alternatively could be made in accordance with another example of the present invention.

As of January, 2000, large cap growth equity funds have had the largest Total Net Assets ("TNA"), offer the largest 10 year Estimated Net Flows ("ENF"), and offer the largest one year Estimated Net Flows. Therefore, as of January 2000, large cap growth equity funds constitute a preferred universe from which the listing illustrated herein is selected.

Figs. 4.1 to 4.2 illustrate a listing of the equity asset groupings of Figs. 2.1 to 2.2, ranked by estimated net flows over the calendar year 1999. Given that this case is for illustration purposes, it should be noted that the one year period is for illustration purposes and could conceivably be significantly extended in practice.

Step 2 - Identify the funds/portfolios that are expected to outperform Fig. 1-blocks 23,24

This step consists essentially of the following sub-steps:

Step 2.1 Perform regression analysis on all funds/portfolios in the selected asset class(es) in order to select those funds expected to outperform in the future. In this example, we take an equally weighted group of the 4 top funds/portfolios in the large-cap growth group.

Step 2.2 Update this analysis periodically, in this example once every three months, i.e., once a quarter. Drop and add funds based on this analysis. In this example, we apply an arbitrary rule based on a quarterly turnover of at most one fund/portfolio. Therefore, we drop the weakest of the four previous funds/portfolios and add the strongest fund/portfolio not included in the four

funds/portfolios comprising the benchmark. Thus, we target a 100% turnover per year. However, it is to be understood that there may be no turnover in any one or more quarters when all four top funds stay within the evaluation criteria.

Step 2.3 As funds/portfolios are dropped and others added in their place, rebalancing will occur in order to maintain tracking with respect to the benchmark.

The regression methodology used in this example is largely based on the following financial economists:

Jensen (e.g., see Jensen, M., "The Performance of Mutual Funds in the Period 1945-1964," The Journal of Finance, Vol. XXIII, No. 2, May 1968, 389-419);

Hendricks, D., Patel, J., and R. Zeckhauser, "Hot Hands in Mutual Funds: Short-Run Persistence of Relative Performance, 1974-1988," The Journal of Finance, March 1993, 93-130;

Grinblatt, M., and S. Titman, "Portfolio Performance Evaluation: Old Issues and New Insights," The Review of Financial Studies, Vol. 2, No. 3, 1989, 393-421;

Grinblatt, M., and S. Titman, "Mutual Fund Performance: An Analysis of Quarterly Portfolio Holdings," Journal of Business, Vol. 62, No. 3, 1989, 393-416;

Grinblatt, M., and S. Titman, "The Persistence of Mutual Fund Performance," The Journal of Finance, Vol. XLVII, No. 5, December 1992, 1977-1984;

Grinblatt, M., and S. Titman, "Performance Measurement without Benchmarks: An Examination of Mutual Fund Returns," Journal of Business, Vol. 66, No. 1, 1993, 47-68;

Grinblatt, M., Titman, S., and R. Wermers, "Momentum Investment Strategies, Portfolio Performance, and Herding: A Study of Mutual Fund Behavior," The American Economic Review, Vol. 85, No. 5, December 1995, 1088-1105, etc.

The basic regression used here (and in most of the studies searching for mutual fund return persistence) is done to calculate some version of "Jensen's alpha". In this example, the following will be the form of the calculation (i.e., this is very standard): the "Jensen Measure is the intercept in a regression of the time series of excess returns (above the one month Treasury Bill rate) of the evaluated portfolio against the time series

of excess returns of the benchmark portfolio(s). This is the traditional measure used in most previous studies of fund performance." Grinblatt, M., and S. Titman, "A Study of Monthly Mutual Fund Returns and Performance Evaluation Techniques," Journal of Financial and Quantitative Analysis, Vol. 29, No. 3: September 1994, p. 423.

This regression calculation is as follows:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for mutual fund i at time t (i.e., month t),
RTB_t
= return for Treasury Bill at time t,
α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t
= return for mutual fund asset class at time t, and
e_t^i
= error term for mutual fund i at time t. Therefore, the estimated equation is of the form:

$$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$$

, where alpha and beta are estimates.

Effectively, we are focusing on calculating rolling alphas for each fund in the large-cap growth asset class designation using 24 month intervals. Generally, we are dropping at least one data point and adding at least another every month (hence the reference to rolling regressions). The practical goal is to identify those individual funds

with the best recent risk-adjusted performance (i.e., over the last two years) under the assumption that some of that relative performance (i.e., relative to other funds in its asset class) will persist into the near future. The literature in this field suggests that two years is a good period of time to use (i.e., three or more may be too long), and that some version of Jensen's alpha is useful in identifying future performers (especially for certain asset classes like growth equities).

Step 3 - Establish and Optimize (Weight and Filter)
Fig. 1-blocks 25, 26

This step involves consolidating the investments contained by the selection of Step 2 to provide a composite list of current investments; filtering the composite list to provide a preliminary moving portfolio of investments; and filtering the preliminary moving portfolio of investments to provide an enhanced moving portfolio of investments.

Each of the securities in the selection of current portfolios has a unique CUSIP identifier. For each of the securities, the CUSIP and the shares data are combined with pricing data. For each of the current portfolios the estimated total market value is calculated as follows:

(1) For each of the securities in the selected portfolio/funds, combine the CUSIP and shares data with pricing data in order to calculate market value weightings. In addition to price, add other fields such as CUSIP, transaction costs, liquidity, description, and industry sector. In short, combine the portfolio data with the asset class data for that specific benchmark. Also, for each portfolio/fund, consolidate any securities with duplicate identifiers (i.e. CUSIPS) by summing up the market value for that identifier.

(2) For each portfolio/fund in the benchmark, calculate the estimated total market value for that portfolio as follows:

$$PMV = \sum_{i=1}^{N} Shares_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(3) Sum up all the PMVs (i.e.,

$$TBMV = \sum_{j=1}^{J} PMV^j$$

, where J = the number of portfolios/funds in the benchmark (in this case 4), and TBMV = total benchmark market value);

(4) Create a scaling factor in order to equally weight the portfolios by taking the reciprocal of the weight of each portfolio as follows:

$$SF^j = 1/(PMV^j / TBMV)$$

where

SF^j = the scaling factor for the jth portfolio/fund.

(5) adjust the scaling factor so that the sum of the scaling factors equal unity,

$$ASF^j = SF^j / \sum_{j=1}^{J} SF^j$$

, where

ASF^j = the adjusted scaling factor for the jth portfolio/fund, and

. (6) Adjust the securities in the benchmark so that each portfolio/fund receives an equal weight (as opposed to each security) by multiplying each security in each portfolio/fund by its appropriate adjusted scaling factor,

$$AMV_i^j = MV_i^j * ASF^i$$

, where

AMV_i^j

= the adjusted market value of security i in portfolio/fund j; and

(7) Based on step 6, create an adjusted weight for each security in each portfolio/fund in the benchmark,

$$x_i^j = AMV_i^j / (\sum_{i=1}^{J} \sum^{N} AMV_i^j * J)$$

, where

x_i^j

= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{i=1}^{j} \sum^{N} x_i^j = 1/J$$

(by construction).

The final filters include the following: (a) each security must be listed on a major domestic or overseas stock quotation system; (b) each security must have been traded for at least 1 year; (c) each security must have an annualized share turnover rate exceeding 20% of the common shares outstanding; (d) over 50% of the total common shares of a company's stock must not be owned by insiders; (e) transaction costs are minimized. subject to movement with the underlying theoretical benchmark.

The arrangement is such that filter (a) requires that the securities be traded on a large recognized stock exchange; filter (b) establishes some base minimum seasoning for

shares; filter (c) establishes some base level of demonstrated liquidity over the last year; filter (d) merely diminishes the odds that the shares of any company held in the portfolio are unduly influenced by insiders, and works as an extra liquidity filter; and filter (e) is an explicit attempt to enhance the returns of the portfolio by minimizing transaction costs subject to the constraint of requiring that the resulting portfolio reflect the original portfolio's financial characteristics.

The following is the formulation for the optimization used in filter (e):

$$TC = \sum_{i=1}^{N} TC_i * x_i$$

Minimize

, where TC = transaction costs (these are based on bid/ask spreads). In a typical portfolio/fund example, N = 519 (i.e., 566 minus the 47 dropped in the first 4 filters).

$\beta^{US} \leq 1.01$

$\beta^{US} \geq 0.99$

Subject to , where

β^{US}

= the beta of the portfolio/fund example. Also, by definition

$$\sum_{i}^{N} \beta_i * x_i = 1 = \beta$$

where N = 519 and β = the beta of the portfolio before the optimization (i.e., the sensitivity of the portfolio/fund to movements in the benchmark). Therefore, by definition, β = 1.

βs are estimated for each of the securities in any selection by the following regression analysis:

$$R_{it} = \alpha_i + \beta_i * R_t^{US} + e_{it}$$

, where R = return, i denotes for security i of the number of securities in said selection, t denotes day t of one year of daily values, and α = alpha of the regression, both α and β being estimated by regressing approximately 200 daily returns for the security against the market weighted returns for the portfolio/fund of said selection of securities.

Step 4 - Tracking and Periodically Updating
Fig. 1- blocks 28, 30

The moving portfolio is repetitively updated in accordance with Steps 1, 2 and 3.

EXAMPLE

A specific example, illustrating the system, process and product of the present invention, is given below in reference to the Microsoft Excel spreadsheets depicted in Figs. 5.1-5.6, 6.1-6.6, 7.1-7.8, 8.1-8.7 and 9.1-9.6. These spreadsheets perform calculations, which generate a running list of funds that are included in a benchmark for a large-cap growth equity momentum shares portfolio during a time span that includes the period from 1/31/1997 to 3/31/2000.

The Spreadsheet of Figs. 5.1 - 5.6

This is the "rawdata" spreadsheet, i.e., returns, expenses, and fund identifiers. There are no calculations and/or filtering at this stage. This spreadsheet draws data from Lipper with some fund identifier and monthly total returns for each fund in the large-cap growth equity group going back to 1/31/95 (i.e., through 3/31/2000). In addition, it

matches this file with 1 month Treasury Bill return data from the Federal Reserve Board's H.15 release. (There are many other potential sources.)

The Spreadsheet of Figs. 6.1 - 6.6

Next comes the filtering to reduce the sample to the set from which final selections are made. In addition, an average monthly return is calculated across the 122 funds that survived the filters. This spreadsheet filters the fund level data as follows: (1) cuts the period from 12/31/1989 through 3/31/2000 to 1/31/1995 through 3/31/2000; (2) eliminates all funds without full return data during the period 1/31/95 through 3/31/2000; and (3) eliminates all duplicate fund data while keeping those funds with the lowest stated total expenses.

The Spreadsheet of Figs. 7.1 - 7.8

This spreadsheet nets out the "risk-free rate" from individual and average fund returns. It calculates returns net of "risk-free rate". Of the original funds, 122 remain after applying the initial filters mentioned. Therefore, the universe of funds is this list of 122 large-cap growth equity funds. This netting of the "risk-free rate" also is applied to the average return for the 122 funds. Reference is made to the above regression equations to explain the processing of both the individual funds monthly returns and their average or median monthly returns.

The Spreadsheet of Figs. 8.1 - Fig. 8.7

This spreadsheet calculates the rolling alphas, which are the basis for fund inclusion/exclusion in the benchmark. It calculates rolling 2 year (i.e., 24 month) alphas over the period 12/31/1996 through 3/31/2000. This is done for all 122 funds. These

alphas form the basis by which funds are included and/or dropped from the benchmark every time the benchmark is updated (in this case quarterly).

The Spreadsheet of Figs. 9.1 - 9.5

This spreadsheet tracks the funds comprising the benchmark. Essentially, it summarizes the combination of the alphas derived in the previous spreadsheet and the rules of fund selection discussed in the first part of this document. Funds must be large-cap growth equity funds as defined by Lipper. The benchmark comprises four of these funds. Each calendar quarter one or none of these funds will be dropped and replaced by that fund with the best-estimated alpha (i.e., outside of the top three current funds included in the benchmark). This spreadsheet displays the rolling selected funds (in this example 4 funds are always maintained in the benchmark – equally weighted) as they would appear chronologically to implement the strategy of the present invention. For example, given the lag involved with the data, the data for 1/31/1997 is based on the known 12/31/1996 data.

Rebalancing the Benchmark

Rebalancing involves repeating the foregoing steps periodically. In this example, after the initial four funds are selected, typically only one will need to be changed each quarter. Although, as can be seen from the 2nd and 3rd to last quarterly updates in this example, there is no change required because the same four are still rated in the top four by this method.

OPERATION

The operation of the present mutual fund systems, processes and products involves: selecting a restricted number of asset classes/groups that have demonstrated

superior returns by maintaining momentum during an existing first period of time of relatively long duration; selecting portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration; establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio. The practical value of the aforementioned systems, processes and products is demonstrated by the following. The aforementioned spreadsheet example added about 14% incremental risk-adjusted return per year. The geometric average annual return for this example was 47.30% per year (over the 39 month period analyzed – 1/31/1997 through 3/31/2000) versus 33.45% for the average fund (i.e., for the 122 fund universe). The aforementioned example focuses on large-cap growth equities. But this approach is applicable within and across many other asset classes/groups.

WHAT IS CLAIMED IS:

1. A financial system comprising:

(a) means for selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns by maintaining momentum during an existing first period of time of relatively long duration;

(b) means for selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) means for establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) means for tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

2. The financial system of claim 1 wherein said first designated period of time is at least two years and said second designated period of time is at most two years.

3. A financial process comprising the steps of:

(a) selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns by maintaining momentum during an existing first period of time of relatively long duration;

(b) selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

4. The financial process of claim 3 wherein said first designated period of time is at least two years and said second designated period of time is at most two years.

5. A financial system comprising:

(a) means for selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior asset flows by maintaining momentum during an existing first period of time of relatively long duration;

(b) means for selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) means for establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) means for tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

(e) said second mentioned means for selecting operating in accordance with the following regression:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for portfolio or mutual fund i at time t (i.e., month t),
RTB_t
= return for specified asset at time t,

α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t
= return for mutual fund asset class at time t, and
e_t^i
= error term for mutual fund i at time t. Therefore, the estimated equation is of the form:

$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$

, where alpha and beta are estimates.

6. The financial system of claim 5 wherein said first designated period of time is at least two years and said second designated period of time is at most two years.

7. A financial process comprising the steps of:

(a) selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns and/or asset flows by maintaining momentum during an existing first period of time of relatively long duration;

(b) selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

(e) said second mentioned step of selecting being performed in accordance with the following regression:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for mutual fund i at time t (i.e., month t),
RTB_t
= return for Treasury Bill at time t,
α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t
= return for mutual fund asset class at time t, and
e_t^i
= error term for mutual fund i at time t.

the estimated equation being of the form:

$$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$$

, where alpha and beta are estimates.

8. The financial process of claim 7 wherein said first designated period of time is at least two years and said second designated period of time is at most two years.

9. A financial system comprising:

(a) means for selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns and/or asset flows by maintaining momentum during an existing first period of time of relatively long duration;

(b) means for selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) means for establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) means for tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

(e) said second mentioned means for selecting operating in accordance with the following regression:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for mutual fund i at time t (i.e., month t),
RTB_t
= return for specified asset at time t,
α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t
= return for mutual fund asset class at time t, and
e_t^i
= error term for mutual fund i at time t, the estimated equation being in the form:

$$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$$

, where alpha and beta are estimates.

10. The financial system of claim 9 wherein said first designated period of time is at least two years and said second designated period of time is at most two years.

11. A financial process comprising the steps of:

(a) selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns and/or asset flows by maintaining momentum during an existing first period of time of relatively long duration;

(b) selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

(e) said second mentioned selecting operating in accordance with the following regression:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for mutual fund i at time t (i.e., month t),
RTB_t
= return for specified asset at time t,
α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t
= return for mutual fund asset class at time t, and
e_t^i
= error term for mutual fund i at time t, the estimated equation being in the form:

$$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$$

, where alpha and beta are estimates.

12. The financial process of claim 11 wherein said first designated period of time is at least two years and said second designated period of time is at most two years.

13. A financial system comprising:

(a) means for selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns and/or asset flows by maintaining momentum during an existing first period of time of relatively long duration;

(b) means for selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) means for establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) means for tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

(e) said second mentioned means for selecting operating in accordance with the following regression:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for mutual fund i at time t (i.e., month t),
RTB_t
= return for Treasury Bill at time t,
α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t

= return for mutual fund asset class at time t, and

e_t^i

= error term for mutual fund i at time t, the estimated equation being in the form:

$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$

, where alpha and beta are estimates.

(f) said means for establishing and optimizing operating in accordance with the following:

(1) for each of the securities in the selected portfolio/funds, combine the unique identifier and shares data with pricing data in order to calculate market value weightings. In addition to price, add other fields such as CUSIP, transaction costs, liquidity, description, and industry sector. In short, combine the portfolio data with the asset class data for that specific benchmark. Also, for each portfolio/fund, consolidate any securities with duplicate identifiers (i.e. CUSIPS) by summing up the market value for that identifier.

(2) for each portfolio/fund in the benchmark, calculate the estimated total market value for that portfolio as follows:

$$PMV = \sum_{i=1}^{N} Shares_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(3) Sum up all the PMVs

$$TBMV = \sum_{j=1}^{J} PMV^j$$

, where J = the number of portfolios/funds in the benchmark (in this case 4), and TBMV = total benchmark market value);

(4) create a scaling factor in order to equally weight the portfolios by taking the reciprocal of the weight of each portfolio as follows:

$$SF^{j} = 1/(PMV^{j} / TBMV)$$

where

SF^{j}

= the scaling factor for the jth portfolio/fund.

(5) adjust the scaling factor so that the sum of the scaling factors equal unity,

$$ASF^{j} = SF^{j} / \sum_{j=1}^{J} SF^{j}$$

, where

ASF^{j}

= the adjusted scaling factor for the jth portfolio/fund, and

$$\sum_{j=1}^{J} ASF^{j} = 1$$

. (6) adjust the securities in the benchmark so that each portfolio/fund receives an equal weight (as opposed to each security) by multiplying each security in each portfolio/fund by its appropriate adjusted scaling factor,

$$AMV_i^{j} = MV_i^{j} * ASF^{j}$$

, where

AMV_i^{j}

= the adjusted market value of security i in portfolio/fund j; and

(7) based on step (6), create an adjusted weight for each security in each portfolio/fund in the benchmark,

$$x_i^j = AMV_i^j / (\sum^j \sum_{i=1}^N AMV_i^j * J)$$

, where

x_i^j

= the weight of the ith security in the jth portfolio/fund, and

$$\sum^j \sum_{i=1}^N x_i^j = 1/J$$

(by construction).

14. A financial process comprising the steps of:

(a) selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns and/or asset flows by maintaining momentum during an existing first period of time of relatively long duration;

(b) selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

(e) said second mentioned step of selecting operating in accordance with the following regression:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for mutual fund i at time t (i.e., month t),
RTB_t
= return for specified asset at time t,
α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t
= return for mutual fund asset class at time t, and
e_t^i
= error term for mutual fund i at time t, the estimated equation being in the form:

$$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$$

, where alpha and beta are estimates.

(f) said establishing and optimizing operating in accordance with the following:

(1) for each of the securities in the selected portfolio/funds, combine the unique identifier and shares data with pricing data in order to calculate market value weightings. In addition to price, add other fields such as CUSIP, transaction costs, liquidity, description, and industry sector. In short, combine the portfolio data with the asset class data for that specific benchmark. Also, for each portfolio/fund, consolidate any securities with duplicate identifiers (i.e. CUSIPS) by summing up the market value for that identifier.

(2) for each portfolio/fund in the benchmark, calculate the estimated total market value for that portfolio as follows:

$$PMV = \sum_{i=1}^{N} Shares_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(3) Sum up all the PMVs (i.e.,

$$TBMV = \sum_{j=1}^{J} PMV^j$$

, where J = the number of portfolios/funds in the benchmark (in this case 4), and TBMV = total benchmark market value);

(4) create a scaling factor in order to equally weight the portfolios by taking the reciprocal of the weight of each portfolio as follows:

$$SF^j = 1/(PMV^j / TBMV)$$

where

SF^j

= the scaling factor for the jth portfolio/fund.

(5) adjust the scaling factor so that the sum of the scaling factors equal unity,

$$ASF^j = SF^j / \sum_{j=1}^{J} SF^j$$

, where

ASF^j

= the adjusted scaling factor for the jth portfolio/fund, and

$$\sum_{j=1}^{J} ASF^j = 1$$

(b) selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time of relatively short duration;

(c) establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum, and

(d) tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio;

(e) said second mentioned step for selecting operating in accordance with the following regression:

$$RMF_t^i - RTB_t = \alpha^i + \beta^i (RAC_t - RTB_t) + e_t^i$$

, where

RMF_t^i
= return for mutual fund i at time t (i.e., month t),
RTB_t
= return for Treasury Bill at time t,
α^i
= alpha of mutual fund i,
β^i
= beta (i.e., slope coefficient) for mutual fund i,
RAC_t
= return for mutual fund asset class at time t, and
e_t^i
= error term for mutual fund i at time t, the estimated equation being in the form:

$$\hat{\alpha}^i = (RMF^i - RTB) - [\hat{\beta}^i (RAC - RTB)]$$

, where alpha and beta are estimates;

(f) said establishing and optimizing operating in accordance with the following:

(1) for each of the securities in the selected portfolio/funds, combine unique identifier and shares data with pricing data in order to calculate market value weightings;

in addition to price, add other fields such as CUSIP, transaction costs, liquidity, description, and industry sector. In short, combine the portfolio data with the asset class data for that specific benchmark; also, for each portfolio/fund, consolidate any securities with duplicate identifiers (i.e. CUSIPS) by summing up the market value for that identifier.

(2) for each portfolio/fund in the benchmark, calculate the estimated total market value for that portfolio as follows:

$$PMV = \sum_{i=1}^{N} Shares_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value;

(3) Sum up all the PMVs (i.e.,

$$TBMV = \sum_{j=1}^{J} PMV^j$$

, where J = the number of portfolios/funds in the benchmark (in this case 4), and TBMV = total benchmark market value);

(4) create a scaling factor in order to equally weight the portfolios by taking the reciprocal of the weight of each portfolio as follows:

$$SF^j = 1/(PMV^j / TBMV)$$

where

SF^j

= the scaling factor for the jth portfolio/fund.

(5) adjust the scaling factor so that the sum of the scaling factors equal unity,

$$ASF^j = SF^j / \sum_{j=1}^{J} SF^j$$

, where

ASF^j

= the adjusted scaling factor for the jth portfolio/fund, and

$$\sum_{j=1}^{J} ASF^j = 1$$

. (6) adjust the securities in the benchmark so that each portfolio/fund receives an equal weight (as opposed to each security) by multiplying each security in each portfolio/fund by its appropriate adjusted scaling factor,

$$AMV_i^j = MV_i^j * ASF^j$$

, where

AMV_i^j

= the adjusted market value of security i in portfolio/fund j; and

(7) based on step (6), create an adjusted weight for each security in each portfolio/fund in the benchmark,

$$x_i^j = AMV_i^j / (\sum^{j} \sum_{i=1}^{N} AMV_i^j * J)$$

, where

x_i^j

= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{i=1}^{j}\sum_{i=1}^{N} x_i^j = 1/J$$

(by construction).

ABSTRACT

The disclosed mutual fund systems, processes and products involve: selecting, from the universe of asset classes, a restricted number of asset classes that have demonstrated superior returns by maintaining momentum during an existing first period of time, say at least two years; selecting, from these asset classes, portfolios of assets that have demonstrated superior returns by maintaining momentum during an existing second period of time, say at most two years; establishing and optimizing a benchmark based upon these portfolios of assets to identify a moving portfolio having calculated momentum; and tracking and periodically updating investment decisions to monitor and maintain the calculated momentum of the moving portfolio.

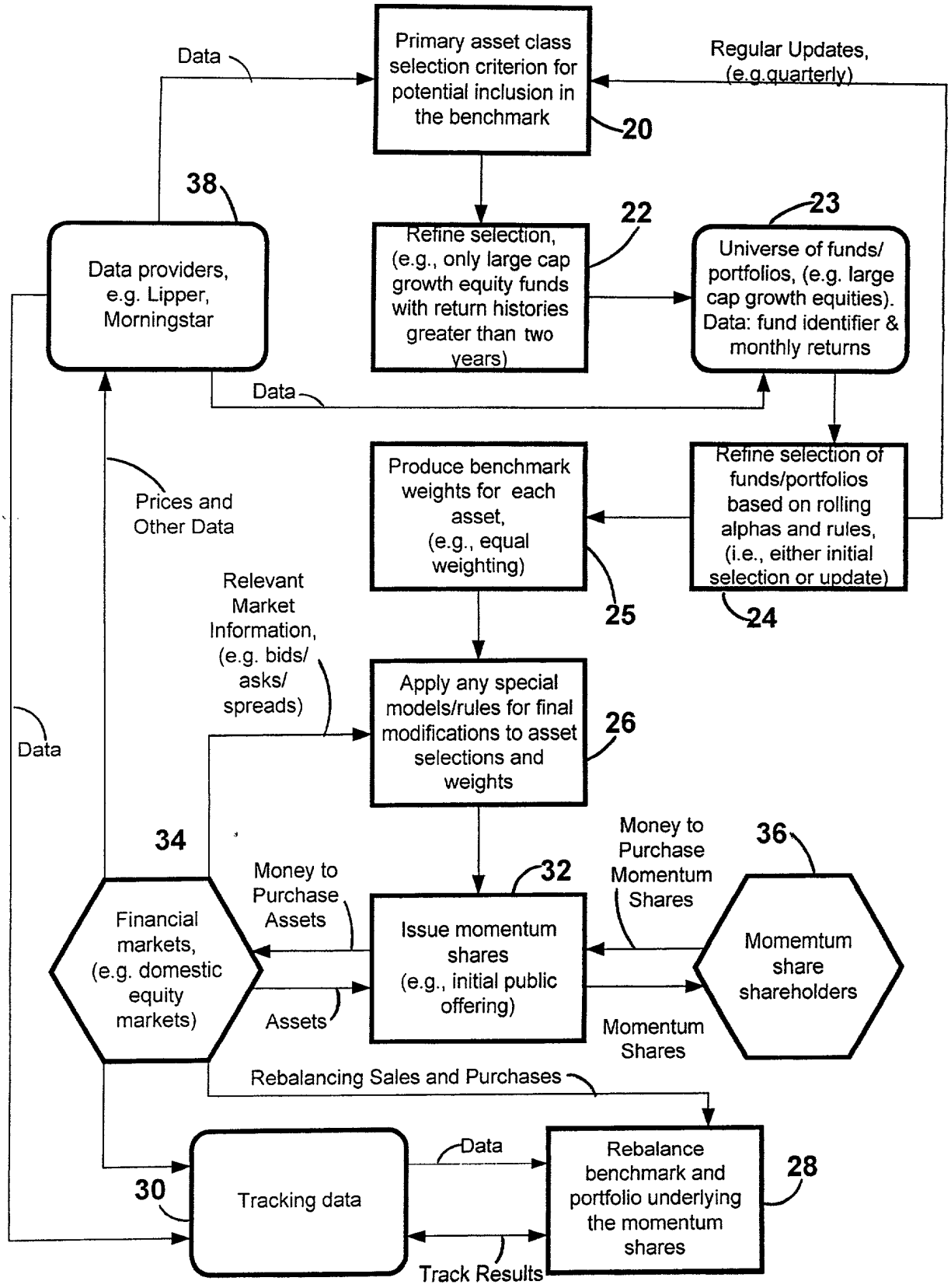

Primary asset class selection criterion for potential inclusion in the benchmark
20
Data
Regular Updates, (e.g.quarterly)
38
Data providers, e.g. Lipper, Morningstar
Refine selection, (e.g., only large cap growth equity funds with return histories greater than two years)
22
23
Universe of funds/ portfolios, (e.g. large cap growth equities). Data: fund identifier & monthly returns
Data
Prices and Other Data
Produce benchmark weights for each asset, (e.g., equal weighting)
25
Refine selection of funds/portfolios based on rolling alphas and rules, (i.e., either initial selection or update)
24
Relevant Market Information, (e.g. bids/ asks/ spreads)
Apply any special models/rules for final modifications to asset selections and weights
26
Data
34
Money to Purchase Assets
32
Money to Purchase Momentum Shares
36
Financial markets, (e.g. domestic equity markets)
Issue momentum shares (e.g., initial public offering)
Momemtum share shareholders
Assets
Momentum Shares
Rebalancing Sales and Purchases
30
Tracking data
Data
Rebalance benchmark and portfolio underlying the momentum shares
28
Track Results

Fig. 1

Equity Funds	Total Net Assets (Mil. $)	Rank	Estimated Net Flow (Mil. $) 1 year	Rank	Estimated Net Flow (Mil. $) 01/31/1990 12/31/1999 10 years	Rank
Large-Cap Growth Funds	$507,552	1	$74,290	1	$150,014	1
Multi-Cap Growth Funds	$505,773	2	$35,681	2	$113,772	2
Science & Technology Funds	$168,385	9	$34,645	3	$46,002	10
S&P 500 Funds	$228,509	6	$32,037	4	$107,208	4
Large-Cap Core Funds	$362,813	3	$17,798	5	$71,334	6
Multi-Cap Core Funds	$172,192	8	$13,726	6	$59,230	7
Small-Cap Growth Funds	$79,166	14	$5,193	7	$21,928	12
Global Funds	$172,441	7	$4,059	8	$48,396	8
Mid-Cap Growth Funds	$121,106	12	$3,865	9	$19,536	14
Japanese Funds	$8,467	32	$3,035	10	$4,322	29
Telecommunication Funds	$12,455	28	$2,610	11	$3,413	31
Pacific Region Funds	$8,591	31	$1,993	12	$4,930	27
Large-Cap Value Funds	$349,444	4	$1,779	13	$107,304	3
Health/Biotechnology Funds	$39,650	18	$1,346	14	$8,065	20
International Small-Cap Funds	$14,999	27	$995	15	$4,918	28
International Funds	$258,999	5	$775	16	$93,631	5
Balanced Funds	$168,166	10	$591	17	$48,360	9
Specialty Diversified Equity Funds	$1,905	38	$331	18	$943	35
Canadian Funds	$83	42	($12)	19	($28)	39
Pacific Ex Japan Funds	$5,703	34	($16)	20	$2,984	32
China Region Funds	$876	40	($84)	21	($58)	40
Gold Oriented Funds	$1,805	39	($96)	22	$824	36
Sector/Miscellaneous Funds	$3,126	36	($100)	23	$1,004	34
Balanced Target Maturity Funds	$860	41	($171)	24	($615)	41
Latin American Funds	$2,145	37	($306)	25	$1,472	33
Natural Resources Funds	$4,379	35	($321)	26	$599	37
Emerging Markets Funds	$23,226	25	($413)	27	$16,345	17
Convertible Securities Funds	$8,807	30	($1,008)	28	$444	38
Utility Funds	$25,740	24	($1,215)	29	($4,623)	42
Real Estate Funds	$7,521	33	($1,242)	30	$6,150	23
Small-Cap Core Funds	$37,572	20	($1,854)	31	$11,681	18
Mid-Cap Core Funds	$52,320	16	($1,974)	32	$8,984	19
European Region Funds	$26,820	22	($2,479)	33	$6,308	22

Fig. 2.1

Global Small-Cap Funds	$26,634	23	($3,041)	34	$3,639	30
Mid-Cap Value Funds	$32,018	21	($3,480)	35	$5,470	25
Flexible Portfolio Funds	$66,668	15	($3,720)	36	$18,459	15
Global Flexible Port Funds	$22,766	26	($5,178)	37	$5,721	24
Income Funds	$39,864	17	($5,427)	38	$6,484	21
Financial Services Funds	$11,167	29	($5,713)	39	$5,050	26
Small-Cap Value Funds	$39,029	19	($8,795)	40	$17,245	16
Equity Income Funds	$98,870	13	($14,610)	41	$22,922	11
Multi-Cap Value Funds	$163,174	11	($33,600)	42	$19,915	13
Total	$3,881,782		$139,899		$1,069,681	

Fig. 2.2

Total Net Rank Estimated Rank Estimated Rank

Fixed Income Funds	Assets (Mil. $)		Net Flow (Mil. $) 1 year		Net Flow (Mil. $) 01/31/1990 12/31/1999 10 years	
Insti Money Market Funds	$370,160	2	$91,691	1	$206,337	2
Money Market Funds	$725,465	1	$84,929	2	$341,751	1
Intermediate Investment Grade Debt Funds	$77,708	8	$9,555	3	$45,840	3
Instl U.S. Government Money Market Funds	$79,651	6	$6,139	4	$22,802	9
Tax-Exempt Money Market Funds	$92,327	5	$3,793	5	$25,242	7
California Tax-Exempt Money Market Funds	$33,156	14	$3,589	6	$16,501	10
Intermediate U.S. Government Funds	$28,135	16	$2,792	7	$10,313	12
U.S. Treasury Money Market Funds	$57,724	10	$2,356	8	$23,492	8
U.S. Government Money Market Funds	$77,963	7	$2,319	9	$29,424	6

Fig. 3.1

New York Tax-Exempt Money Market Funds	$18,178	23	$1,454	10	$8,417	15
Short Investment Grade Debt Funds	$22,619	21	$1,232	11	$3,803	20
Massachusetts Tax-Exempt Money Market Fd	$5,090	39	$693	12	$3,005	23
Sh-Intmdt U.S. Government Funds	$11,322	27	$599	13	$304	51
Target Maturity Funds	$2,004	64	$553	14	$845	40
Short U.S. Government Funds	$9,071	30	$529	15	($413)	79
Other States Tax-Exempt Money Market Fds	$5,842	35	$497	16	$6,228	17
California Intermdt Municipal Debt Funds	$3,494	51	$345	17	$2,227	26
Intermediate Municipal Debt Funds	$27,336	18	$336	18	$9,112	13
New Jersey Tax-Exempt Money Market Funds	$5,573	36	$261	19	$1,666	31
Short Municipal Debt Funds	$7,425	32	$176	20	$2,469	25
Ohio Tax-Exempt Money Market Funds	$3,629	50	$86	21	$1,801	30
Massachusetts Intermediate Muni Debt Fds	$517	84	$75	22	$264	54
Hawaii Municipal Debt Funds	$1,354	72	$74	23	$176	59
Other States Sh-Intmdt Muni Debt Fds	$1,498	69	$68	24	$1,147	36
Pennsylvania Tax-Exempt Money Market Fds	$4,587	42	$25	25	$2,136	27
Georgia Municipal Debt Funds	$951	76	$13	26	$301	52
New York Insured Municipal Debt Funds	$2,218	60	$8	27	$567	46
Florida Insured Municipal Debt Funds	$1,198	73	$1	28	$953	37
Washington Municipal Debt Funds	$47	89	($10)	29	($4)	68
Tennessee Municipal Debt Funds	$765	78	($11)	30	$352	48
South Carolina Municipal Debt Funds	$716	79	($12)	31	$63	66

Fig. 3.2

Louisiana Municipal Debt Funds	$434	86	($12)	32	$69	65
Virginia Municipal Debt Funds	$2,426	57	($14)	33	$886	38
Kansas Municipal Debt Funds	$401	87	($16)	34	$295	53
Virginia Intermediate Muni Debt Fds	$594	81	($23)	35	$141	62
Ultra-Short Obligations Funds	$6,383	33	($29)	36	$2,812	24
Missouri Municipal Debt Funds	$995	75	($32)	37	$237	57
Pennsylvania Municipal Debt Funds	$7,502	31	($32)	38	$1,207	35
Sh-Intmdt Municipal Debt Funds	$6,102	34	($34)	39	$1,348	34
Alabama Municipal Debt Funds	$443	85	($37)	40	($8)	69
California Sh-Intmdt Municipal Debt Fds	$568	82	($38)	41	$320	50
Florida Intermediate Municipal Debt Fds	$872	77	($41)	42	$246	56
Texas Municipal Debt Funds	$344	88	($48)	43	($141)	72
Ohio Intermediate Municipal Debt Fds	$655	80	($49)	44	$249	55
Connecticut Tax-Exempt Money Market Fds	$2,878	54	($54)	45	$846	39
Colorado Municipal Debt Funds	$1,131	74	($63)	46	$145	61
Maryland Municipal Debt Funds	$2,348	59	($66)	47	$207	58
Kentucky Municipal Debt Funds	$1,395	71	($73)	48	$130	64
General Bond Funds	$4,800	41	($77)	49	$3,133	22
North Carolina Municipal Debt Funds	$2,074	62	($87)	50	$320	49
Pennsylvania Intermediate Muni Debt Fds	$526	83	($88)	51	($212)	77
Massachusetts Municipal Debt Funds	$4,185	43	($94)	52	($376)	78
Oregon Municipal Debt Funds	$1,455	70	($94)	53	$4	67
Other States Municipal Debt Funds	$1,793	65	($95)	54	$501	47
California Insured Municipal Debt Funds	$3,998	45	($96)	55	$578	45

Fig. 3.3

Michigan Tax-Exempt Money Market Funds	$1,551	67	($120)	56	$660	42
Arizona Municipal Debt Funds	$2,037	63	($120)	57	($87)	71
Connecticut Municipal Debt Funds	$1,719	66	($140)	58	($175)	74
Intermediate U.S. Treasury Funds	$3,826	47	($166)	59	$1,803	29
International Income Funds	$5,404	38	($176)	60	$1,575	32
General U.S. Treasury Funds	$2,738	56	($181)	61	($39)	70
Minnesota Municipal Debt Funds	$2,860	55	($206)	62	($146)	73
Corporate Debt Funds BBB-Rated	$23,624	19	($211)	63	$8,914	14
New Jersey Municipal Debt Funds	$5,017	40	($212)	64	$130	63
New York Intermdt Municipal Debt Funds	$2,118	61	($214)	65	$657	43
Emerging Markets Debt Funds	$3,672	49	($230)	66	$1,810	28
Ohio Municipal Debt Funds	$3,762	48	($241)	67	($182)	75
Short World Multi-Market Income Funds	$1,517	68	($260)	68	($5,965)	82
Instl Tax-Exempt Money Market Funds	$36,159	13	($285)	69	$8,269	16
Michigan Municipal Debt Funds	$3,237	52	($325)	70	($209)	76
Sh-Intmdt Investment Grade Debt Funds	$13,504	25	($356)	71	$3,761	21
Other States Intermediate Muni Debt Fds	$3,859	46	($361)	72	$1,492	33
Florida Municipal Debt Funds	$5,521	37	($543)	73	$583	44
Adjustable Rate Mortgage Funds	$3,123	53	($669)	74	($11,550)	84
Flexible Income Funds	$2,403	58	($716)	75	$167	60
Short U.S. Treasury Funds	$4,041	44	($840)	76	$740	41
New York Municipal Debt Funds	$18,465	22	($1,257)	77	($1,766)	80
GNMA Funds	$38,231	12	($1,271)	78	($23,344)	87
Insured Municipal Debt Funds	$11,700	26	($1,292)	79	($5,682)	81
Global Income Funds	$10,397	28	($1,420)	80	($70,481)	89
High Yield Municipal Debt Funds	$16,870	24	($1,514)	81	$4,397	19

Fig. 3.4

U.S. Mortgage Funds	$9,943	29	($1,688)	82	($15,412)	85
General U.S. Government Fds	$27,415	17	($2,198)	83	($28,556)	88
Corporate Debt Funds A-Rated	$38,832	11	($2,246)	84	$6,077	18
Instl U.S. Treasury Money Market Funds	$101,156	3	($2,324)	85	$36,363	4
Multi-Sector Income Funds	$22,644	20	($3,071)	86	$10,853	11
California Municipal Debt Funds	$30,621	15	($3,139)	87	($7,862)	83
High Current Yield Funds	$99,746	4	($4,915)	88	$34,996	5
General Municipal Debt Funds	$71,567	9	($7,024)	89	($18,412)	86
Total	$2,361,299		$172,934		$713,434	

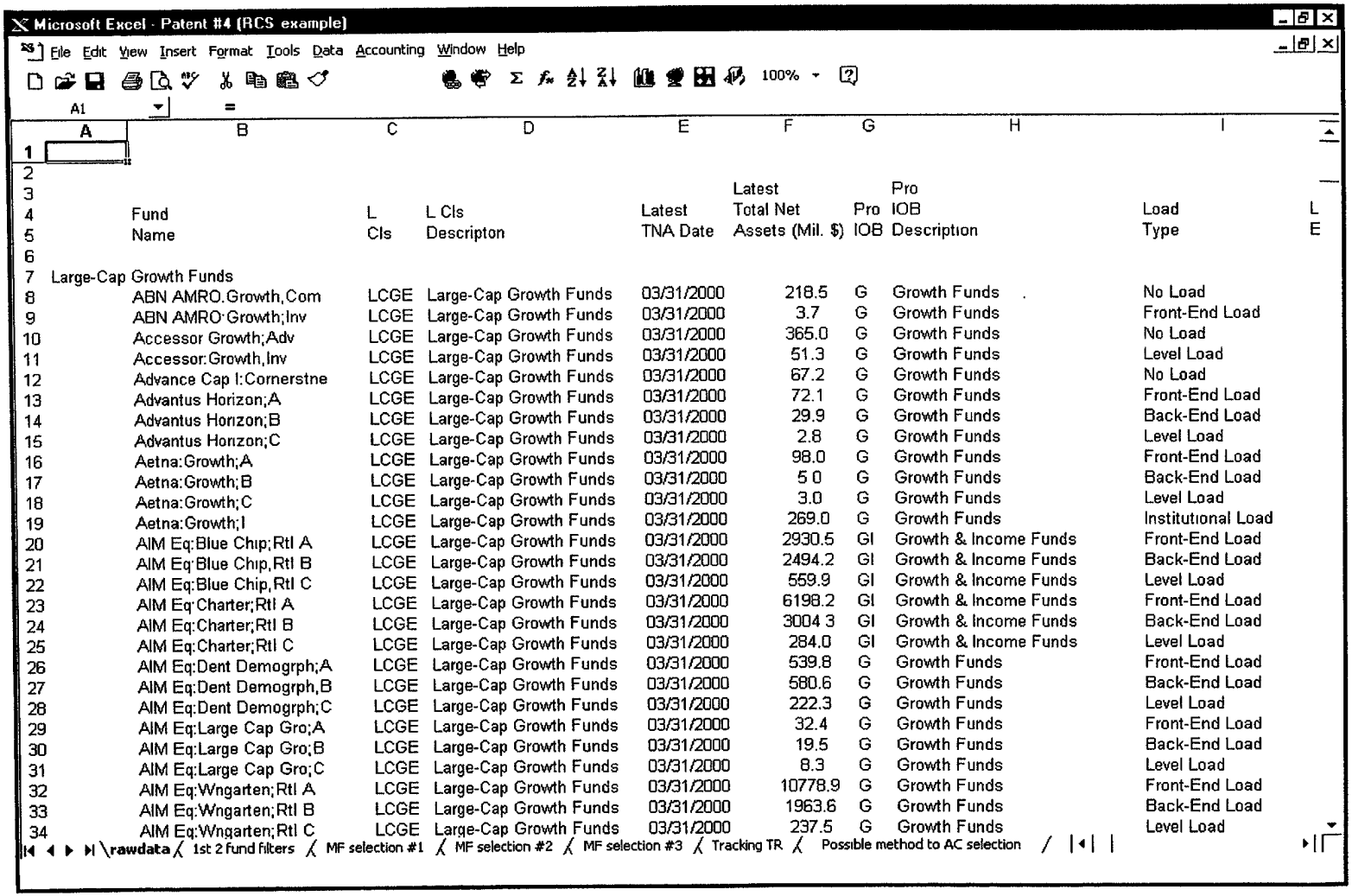
Fig. 3.5

	Estimated Net Flow (Mil. $) 1yr ending 12/31/1997	Rank	Estimated Net Flow (Mil. $) 1yr ending 12/31/1998	Rank	Estimated Net Flow (Mil. $) 1yr ending 12/31/1999	Rank
Large-Cap Growth Funds	$12,141	7	$32,148	1	$74,290	1
Multi-Cap Growth Funds	$5,981	12	($4,482)	40	$35,681	2
Science & Technology Funds	$1,386	23	$115	21	$34,645	3
S&P 500 Funds	$18,545	4	$25,305	3	$32,037	4
Large-Cap Core Funds	$10,334	9	$9,769	5	$17,798	5
Multi-Cap Core Funds	$12,020	8	$16,760	4	$13,726	6
Small-Cap Growth Funds	$4,304	16	$1,820	12	$5,193	7
Global Funds	$12,826	6	$5,537	7	$4,059	8
Mid-Cap Growth Funds	$1,706	21	($4,068)	39	$3,865	9
Japanese Funds	($191)	36	$281	19	$3,035	10

Fig. 4.1

Telecommunication Funds	($250)	37	$586	18	$2,610	11
Pacific Region Funds	($1,157)	40	($902)	32	$1,993	12
Large-Cap Value Funds	$26,096	1	$32,099	2	$1,779	13
Health/Biotechnology Funds	$988	26	$4,989	9	$1,346	14
International Small-Cap Funds	$404	28	$266	20	$995	15
International Funds	$19,297	3	($764)	31	$775	16
Balanced Funds	$7,554	11	$7,433	6	$591	17
Specialty Diversified Equity Funds	($599)	39	($240)	27	$331	18
Canadian Funds	($51)	34	($39)	23	($12)	19
Pacific Ex Japan Funds	($2,323)	41	($220)	26	($16)	20
China Region Funds	$89	32	($118)	24	($84)	21
Gold Oriented Funds	$171	29	$87	22	($96)	22
Sector/Miscellaneous Funds	($264)	38	$614	17	($100)	23
Balanced Target Maturity Funds	($179)	35	($152)	25	($171)	24
Latin American Funds	$415	27	($1,412)	37	($306)	25
Natural Resources Funds	$91	31	($1,360)	36	($321)	26
Emerging Markets Funds	$4,769	15	($1,074)	33	($413)	27
Convertible Securities Funds	$140	30	($395)	29	($1,008)	28
Utility Funds	($2,840)	42	($323)	28	($1,215)	29
Real Estate Funds	$4,282	17	($1,280)	34	($1,242)	30
Small-Cap Core Funds	$4,857	14	$4,093	10	($1,854)	31
Mid-Cap Core Funds	$2,181	18	($726)	30	($1,974)	32
European Region Funds	$1,182	25	$5,385	8	($2,479)	33
Global Small-Cap Funds	$1,812	20	($2,487)	38	($3,041)	34
Mid-Cap Value Funds	$1,286	24	($1,318)	35	($3,480)	35
Flexible Portfolio Funds	$2,043	19	$2,503	11	($3,720)	36
Global Flexible Port Funds	$1,624	22	($5,128)	41	($5,178)	37
Income Funds	$36	33	$1,555	15	($5,427)	38
Financial Services Funds	$5,586	13	$1,738	14	($5,713)	39
Small-Cap Value Funds	$13,951	5	$1,754	13	($8,795)	40
Equity Income Funds	$8,330	10	$1,145	16	($14,610)	41
Multi-Cap Value Funds	$19,878	2	($7,431)	42	($33,600)	42
Total	$198,450		$122,066		$139,899	

Fig. 4.2



	A	B	C	D	E	F	G	H	I	
1										
2										
3						Latest		Pro		
4		Fund	L	L Cls	Latest	Total Net	Pro	IOB	Load	L
5		Name	Cls	Descripton	TNA Date	Assets (Mil. $)	IOB	Description	Type	E
6										
7	Large-Cap Growth Funds									
8		ABN AMRO Growth,Com	LCGE	Large-Cap Growth Funds	03/31/2000	218.5	G	Growth Funds	No Load	
9		ABN AMRO Growth;Inv	LCGE	Large-Cap Growth Funds	03/31/2000	3.7	G	Growth Funds	Front-End Load	
10		Accessor Growth;Adv	LCGE	Large-Cap Growth Funds	03/31/2000	365.0	G	Growth Funds	No Load	
11		Accessor Growth,Inv	LCGE	Large-Cap Growth Funds	03/31/2000	51.3	G	Growth Funds	Level Load	
12		Advance Cap I:Cornerstne	LCGE	Large-Cap Growth Funds	03/31/2000	67.2	G	Growth Funds	No Load	
13		Advantus Horizon;A	LCGE	Large-Cap Growth Funds	03/31/2000	72.1	G	Growth Funds	Front-End Load	
14		Advantus Horizon;B	LCGE	Large-Cap Growth Funds	03/31/2000	29.9	G	Growth Funds	Back-End Load	
15		Advantus Horizon;C	LCGE	Large-Cap Growth Funds	03/31/2000	2.8	G	Growth Funds	Level Load	
16		Aetna:Growth;A	LCGE	Large-Cap Growth Funds	03/31/2000	98.0	G	Growth Funds	Front-End Load	
17		Aetna:Growth;B	LCGE	Large-Cap Growth Funds	03/31/2000	5 0	G	Growth Funds	Back-End Load	
18		Aetna:Growth;C	LCGE	Large-Cap Growth Funds	03/31/2000	3.0	G	Growth Funds	Level Load	
19		Aetna:Growth;I	LCGE	Large-Cap Growth Funds	03/31/2000	269.0	G	Growth Funds	Institutional Load	
20		AIM Eq:Blue Chip;Rtl A	LCGE	Large-Cap Growth Funds	03/31/2000	2930.5	GI	Growth & Income Funds	Front-End Load	
21		AIM Eq:Blue Chip,Rtl B	LCGE	Large-Cap Growth Funds	03/31/2000	2494.2	GI	Growth & Income Funds	Back-End Load	
22		AIM Eq:Blue Chip,Rtl C	LCGE	Large-Cap Growth Funds	03/31/2000	559.9	GI	Growth & Income Funds	Level Load	
23		AIM Eq:Charter;Rtl A	LCGE	Large-Cap Growth Funds	03/31/2000	6198.2	GI	Growth & Income Funds	Front-End Load	
24		AIM Eq:Charter;Rtl B	LCGE	Large-Cap Growth Funds	03/31/2000	3004 3	GI	Growth & Income Funds	Back-End Load	
25		AIM Eq:Charter;Rtl C	LCGE	Large-Cap Growth Funds	03/31/2000	284.0	GI	Growth & Income Funds	Level Load	
26		AIM Eq:Dent Demogrph;A	LCGE	Large-Cap Growth Funds	03/31/2000	539.8	G	Growth Funds	Front-End Load	
27		AIM Eq:Dent Demogrph,B	LCGE	Large-Cap Growth Funds	03/31/2000	580.6	G	Growth Funds	Back-End Load	
28		AIM Eq:Dent Demogrph;C	LCGE	Large-Cap Growth Funds	03/31/2000	222.3	G	Growth Funds	Level Load	
29		AIM Eq:Large Cap Gro;A	LCGE	Large-Cap Growth Funds	03/31/2000	32.4	G	Growth Funds	Front-End Load	
30		AIM Eq:Large Cap Gro;B	LCGE	Large-Cap Growth Funds	03/31/2000	19.5	G	Growth Funds	Back-End Load	
31		AIM Eq:Large Cap Gro;C	LCGE	Large-Cap Growth Funds	03/31/2000	8.3	G	Growth Funds	Level Load	
32		AIM Eq:Wngarten;Rtl A	LCGE	Large-Cap Growth Funds	03/31/2000	10778.9	G	Growth Funds	Front-End Load	
33		AIM Eq:Wngarten;Rtl B	LCGE	Large-Cap Growth Funds	03/31/2000	1963.6	G	Growth Funds	Back-End Load	
34		AIM Eq:Wngarten;Rtl C	LCGE	Large-Cap Growth Funds	03/31/2000	237.5	G	Growth Funds	Level Load	

Fig. 5.1

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	Load Type	Latest Total Expense Ratio	Turnover Portfolio	NASDAQ Symbol	Mgt Co Code	Management Company Name	11/30/1989 12/31/1989 Cum Tot Return	12/31/1989 01/31/1990 Cum Tot Return	01/31/1990 02/28/1990 Cum Tot Return	02/28/1990 03/31/1990 Cum Tot Return	03. 04. Cu To
8	No Load	1.060	65	RGTCX	ABN	ABN AMRO ASSET MGMT INC	N/A	N/A	N/A	N/A	
9	Front-End Load	1.520	65	AGISX	ABN	ABN AMRO ASSET MGMT INC	N/A	N/A	N/A	N/A	
10	No Load	0.920	112	AGROX	ACS	ACCESSOR CAPITAL MGMT LP	N/A	N/A	N/A	N/A	
11	Level Load	N/A	N/A	AGRIX	ACS	ACCESSOR CAPITAL MGMT LP	N/A	N/A	N/A	N/A	
12	No Load	N/A	N/A	ADCRX	ADV	ADVANCE CAPITAL MGMT INC	N/A	N/A	N/A	N/A	
13	Front-End Load	1.300	60	ADIOX	ADS	ADVANTUS CAPITAL MGMT	2.06	-8.27	1.89	4.18	
14	Back-End Load	2.040	60	ADHBX	ADS	ADVANTUS CAPITAL MGMT	N/A	N/A	N/A	N/A	
15	Level Load	2.040	60		ADS	ADVANTUS CAPITAL MGMT	N/A	N/A	N/A	N/A	
16	Front-End Load	1.190	142	AEGAX	AET	AETNA LIFE INS & ANNTY	N/A	N/A	N/A	N/A	
17	Back-End Load	1.940	142		AET	AETNA LIFE INS & ANNTY	N/A	N/A	N/A	N/A	
18	Level Load	1.940	142		AET	AETNA LIFE INS & ANNTY	N/A	N/A	N/A	N/A	
19	Institutional Load	0 940	142	AEGRX	AET	AETNA LIFE INS & ANNTY	N/A	N/A	N/A	N/A	
20	Front-End Load	1.190	22	ABCAX	AIM	AIM ADVISORS INC	4.24	-6.27	1.05	2.53	
21	Back-End Load	1.910	22	ABCBX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
22	Level Load	1.900	22	ABCCX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
23	Front-End Load	1.050	107	CHTRX	AIM	AIM ADVISORS INC	0.90	-6.14	1.47	2.26	
24	Back-End Load	1.800	107	BCHTX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
25	Level Load	1.800	107	CHTCX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
26	Front-End Load	N/A	N/A	ADDAX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
27	Back-End Load	N/A	N/A	ADDBX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
28	Level Load	N/A	N/A	ADDCX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
29	Front-End Load	1.530	21	LCGAX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
30	Back-End Load	2.230	21	LCGBX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
31	Level Load	2.230	21		AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
32	Front-End Load	1.030	124	WEINX	AIM	AIM ADVISORS INC	0.26	-8.14	2.22	5.06	
33	Back-End Load	1.820	124	BWEIX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	
34	Level Load	1.820	124	CWEIX	AIM	AIM ADVISORS INC	N/A	N/A	N/A	N/A	

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Fig. 5.2

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DV1 =

	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI
1														
2	02/28/1999	03/31/1999	04/30/1999	05/31/1999	06/30/1999	07/31/1999	08/31/1999	09/30/1999	10/31/1999	11/30/1999	12/31/1999	01/31/2000	02/29/2000	
3	03/31/1999	04/30/1999	05/31/1999	06/30/1999	07/31/1999	08/31/1999	09/30/1999	10/31/1999	11/30/1999	12/31/1999	01/31/2000	02/29/2000	03/31/2000	
4	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	
5	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	
6														
7														
8	2.62	1.39	-3.09	7.09	-5.43	-2.01	-2.66	8.31	2.12	6.65	-5.79	4.63	8.96	
9	2.57	1.34	-3.10	7.06	-5.45	-2.08	-2.73	8.30	2.07	6.58	-5.78	4.54	8.92	
10	6.09	-1.21	-4.14	6.35	-3.55	-0.10	-1.81	7.29	3.24	9.29	-6.81	2.69	8.01	
11	6.05	-1.24	-4.16	6.27	-3.59	-0.13	-1.85	7.27	3.20	9.23	-6.84	2.62	7.96	
12	5.95	0.63	-2.96	6.20	-2.54	1.82	-2.64	7.00	3.68	6.94	-3.76	0.23	8.87	
13	5.46	-0.19	-3.70	8.22	-3.30	1.19	-1.57	5.28	4.35	10.26	-5.10	7.81	6.01	
14	5.40	-0.23	-3.72	8.10	-3.31	1.09	-1.66	5.21	4.32	10.17	-5.15	7.76	5.92	
15	5.41	-0.23	-3.74	8.09	-3.33	1.12	-1.65	5.22	4.29	10.18	-5.15	7.75	5.96	
16	5.58	0.29	-2.42	8.78	-1.09	-0.32	-2.27	4.78	4.20	12.59	-4.50	7.43	7.39	
17	N/A	0.24	-2.48	8.65	-1.12	-0.36	-2.33	4.67	4.15	12.52	-4.56	7.36	7.28	
18	5.53	0.24	-2.49	8.71	-1.18	-0.37	-2.30	4.66	4.13	12.55	-4.54	7.32	7.33	
19	5.59	0.33	-2.43	8.78	-1.08	-0.27	-2.23	4.74	4.26	12.62	-4.45	7.42	7.41	
20	4.93	1.10	-2.95	6.29	-2.77	-0.79	-0.98	7.02	3.23	8.63	-3.30	1.57	8.85	
21	4.88	1.02	-2.99	6.22	-2.84	-0.83	-1.04	6.96	3.18	8.56	-3.36	1.52	8.79	
22	4.85	1.05	-2.99	6.22	-2.84	-0.85	-1.02	6.96	3.16	8.58	-3.36	1.52	8.79	
23	6.78	1.43	-2.69	7.26	-3.75	-0.06	-1.28	5.93	4.20	11.50	-3.68	3.37	8.75	
24	6.77	1.37	-2.77	7.26	-3.84	-0.18	-1.29	5.86	4.12	11.41	-3.73	3.30	8.71	
25	6.74	1.31	-2.77	7.24	-3.83	-0.18	-1.29	5.85	4.12	11.44	-3.72	3.30	8.69	
26	N/A	N/A	N/A	N/A	1.57	0.73	0.27	8.98	9.80	15.90	-2.72	12.91	0.71	
27	N/A	N/A	N/A	N/A	1.57	0.73	0.09	9.00	9.74	15.88	-2.79	12.89	0.59	
28	N/A	N/A	N/A	N/A	1.57	0.73	0.09	9.00	9.74	15.88	-2.79	12.83	0.65	
29	N/A	-1.79	-3.16	7.62	-2.48	0.19	-0.19	6.41	6.64	15.03	1.01	20.87	3.73	
30	N/A	N/A	-3.25	7.52	-2.58	0.09	-0.28	6.43	6.58	14.93	0.87	20.86	3.69	
31	N/A	N/A	-3.25	7.52	-2.58	0.09	-0.19	6.43	6.48	15.01	0.87	20.78	3.69	
32	6.00	-0.30	-1.70	7.00	-2.70	-0.63	0.78	4.50	6.85	10.65	-3.62	15.33	2.27	
33	5.90	-0.35	-1.76	6.92	-2.79	-0.65	0.69	4.44	6.78	10.57	-3.67	15.22	2.22	
34	5.94	-0.35	-1.80	6.96	-2.79	-0.69	0.73	4.43	6.77	10.52	-3.67	15.25	2.22	

rawdata / 1st 2 fund filters / MF selection #1 / MF selection #2 / MF selection #3 / Tracking TR / Possible method to AC selection /

Fig. 5.3

Microsoft Excel - Patent #4 (RCS example)

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100%

A522 =

	A	B	C	D	E	F	G	H	I
522		UAM:Sirach Eqty;Inst	LCGE	Large-Cap Growth Funds	03/31/2000	54.2	G	Growth Funds	Institutional Load
523		UAM.Sirach Growth;Inst	LCGE	Large-Cap Growth Funds	03/31/2000	72 2	G	Growth Funds	Institutional Load
524		UAM:Sirach Growth;Int Sv	LCGE	Large-Cap Growth Funds	03/31/2000	11.0	G	Growth Funds	Institutional Load
525		UBS Inv US Lg Cap Gro	LCGE	Large-Cap Growth Funds	03/31/2000	7.7	G	Growth Funds	Level Load
526		UMB Scout Stock Select	LCGE	Large-Cap Growth Funds	03/31/2000	7.9	G	Growth Funds	No Load
527		Unified:Starwood Strat	LCGE	Large-Cap Growth Funds	03/31/2000	3.4	G	Growth Funds	No Load
528		United Vanguard Fund;A	LCGE	Large-Cap Growth Funds	03/31/2000	3013.2	G	Growth Funds	Front-End Load
529		United Vanguard Fund;Y	LCGE	Large-Cap Growth Funds	03/31/2000	19.6	G	Growth Funds	Institutional Load
530		Universal Capital Growth	LCGE	Large-Cap Growth Funds	02/29/2000	18.3	CA	Capital Appreciation Funds	Front-End Load
531		USAA First Srt Growth	LCGE	Large-Cap Growth Funds	03/31/2000	235.3	G	Growth Funds	No Load
532		Value Line Fund	LCGE	Large-Cap Growth Funds	03/31/2000	503.3	GI	Growth & Income Funds	No Load
533		Value Line Lvge Growth	LCGE	Large-Cap Growth Funds	03/31/2000	785.7	CA	Capital Appreciation Funds	No Load
534		Value Line Multinatl Co	LCGE	Large-Cap Growth Funds	03/31/2000	45.1	GI	Growth & Income Funds	No Load
535		Van Kampen Eq Gro;A	LCGE	Large-Cap Growth Funds	03/31/2000	37.1	G	Growth Funds	Front-End Load
536		Van Kampen Eq Gro;B	LCGE	Large-Cap Growth Funds	03/31/2000	44.1	G	Growth Funds	Back-End Load
537		Van Kampen Eq Gro;C	LCGE	Large-Cap Growth Funds	03/31/2000	15.7	G	Growth Funds	Level Load
538		Vanguard Growth Indx;Ins	LCGE	Large-Cap Growth Funds	03/31/2000	633.2	G	Growth Funds	Institutional Load
539		Vanguard Growth Indx;Inv	LCGE	Large-Cap Growth Funds	03/31/2000	16387.4	G	Growth Funds	No Load
540		Vanguard US Growth	LCGE	Large-Cap Growth Funds	03/31/2000	20038.9	G	Growth Funds	No Load
541		WellsFargo:Lg Co Gr;A	LCGE	Large-Cap Growth Funds	03/31/2000	292.6	G	Growth Funds	Front-End Load
542		WellsFargo:Lg Co Gr;B	LCGE	Large-Cap Growth Funds	03/31/2000	378.3	G	Growth Funds	Back-End Load
543		WellsFargo:Lg Co Gr;I	LCGE	Large-Cap Growth Funds	03/31/2000	1366.2	G	Growth Funds	Institutional Load
544		White Oak Growth Stock	LCGE	Large-Cap Growth Funds	03/31/2000	3701.8	G	Growth Funds	No Load
545		Wilshire Tgt:LC Gr;Inst	LCGE	Large-Cap Growth Funds	03/31/2000	121.7	G	Growth Funds	Institutional Load
546		Wilshire Tgt:LC Gr;Inv	LCGE	Large-Cap Growth Funds	03/31/2000	609.8	G	Growth Funds	No Load
547		WM:Growth;A	LCGE	Large-Cap Growth Funds	03/31/2000	414.7	G	Growth Funds	Front-End Load
548		WM:Growth;B	LCGE	Large-Cap Growth Funds	03/31/2000	516.3	G	Growth Funds	Back-End Load
549		WM:Growth;I	LCGE	Large-Cap Growth Funds	03/31/2000	477.1	G	Growth Funds	Institutional Load
550		Wp Stewart Growth Fund	LCGE	Large-Cap Growth Funds	03/31/2000	76.3	G	Growth Funds	No Load
551		WT:Wilm Lg Cap Gro;Instl	LCGE	Large-Cap Growth Funds	03/31/2000	320 0	G	Growth Funds	No Load
552		Average/Total				583102.9			
553		Median				76.3			
554									
555									

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Fig. 5.4

Microsoft Excel - Patent #4 (RCS example)

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I522 = Institutional Load

	I	J	K	L	M	N	O	P	Q	R
522	Institutional Load	0.900	121	SIEQX	UAM	UAM FUND SERVICES INC	N/A	N/A	N/A	N/A
523	Institutional Load	1.010	90	SGRWX	UAM	UAM FUND SERVICES INC	N/A	N/A	N/A	N/A
524	Institutional Load	1 240	90	SGWSX	UAM	UAM FUND SERVICES INC	N/A	N/A	N/A	N/A
525	Level Load	1.570	51		UBS	UBS A G /UBS BRINSON	N/A	N/A	N/A	N/A
526	No Load	N/A	N/A		UMB	UMB BANK N.A.	N/A	N/A	N/A	N/A
527	No Load	1.500	120	STRWX	VIN	UNIFIED INV ADVISERS INC	N/A	N/A	N/A	N/A
528	Front-End Load	1.130	84	UNVGX	WNR	WADDELL & REED INV MGMT CO	0.72	-5.99	3.10	3.36
529	Institutional Load	0.900	84		WNR	WADDELL & REED INV MGMT CO	N/A	N/A	N/A	N/A
530	Front-End Load	2.000	71	UCGFX	GBG	GRAVER BOKHOF GOODWIN & SULLIVAN LP	N/A	N/A	N/A	N/A
531	No Load	1.650	27	UFSGX	USA	USAA INVESTMENT MGMT CO	N/A	N/A	N/A	N/A
532	No Load	0.770	98	VLIFX	VAL	VALUE LINE INC	0.32	-7.97	1.73	4.26
533	No Load	0.870	54	VALLX	VAL	VALUE LINE INC	0.83	-8.58	1.56	3.64
534	No Load	1.580	36	VLUMX	VAL	VALUE LINE INC	N/A	N/A	N/A	N/A
535	Front-End Load	1.500	126	VEGAX	VNK	VAN KAMPEN INV ADV CORP	N/A	N/A	N/A	N/A
536	Back-End Load	2.250	126	VEGBX	VNK	VAN KAMPEN INV ADV CORP	N/A	N/A	N/A	N/A
537	Level Load	2.250	126	VEGCX	VNK	VAN KAMPEN INV ADV CORP	N/A	N/A	N/A	N/A
538	Institutional Load	0.120	29	VIGIX	VAN	VANGUARD GROUP INC	N/A	N/A	N/A	N/A
539	No Load	0.220	29	VIGRX	VAN	VANGUARD GROUP INC	N/A	N/A	N/A	N/A
540	No Load	0 390	49	VWUSX	VAN	VANGUARD GROUP INC	1.09	-5.97	2 29	4 58
541	Front-End Load	1.200	28	NVLAX	WFB	WELLS FARGO BANK	N/A	N/A	N/A	N/A
542	Back-End Load	1 760	28	NVLOX	WFB	WELLS FARGO BANK	N/A	N/A	N/A	N/A
543	Institutional Load	1 000	28	NVLCX	WFB	WELLS FARGO BANK	N/A	N/A	N/A	N/A
544	No Load	1 000	6	WOGSX	OAK	OAK ASSOCIATES	N/A	N/A	N/A	N/A
545	Institutional Load	0.620	57	WLCGX	WLS	WILSHIRE ASSOCIATES INC	N/A	N/A	N/A	N/A
546	No Load	0.730	57	DTLGX	WLS	WILSHIRE ASSOCIATES INC	N/A	N/A	N/A	N/A
547	Front-End Load	1.272	119	SRGFX	WMS	WASHINGTON MUTUAL INC	N/A	N/A	N/A	N/A
548	Back-End Load	2.032	119	SQGRX	WMS	WASHINGTON MUTUAL INC	N/A	N/A	N/A	N/A
549	Institutional Load	0.872	119		WMS	WASHINGTON MUTUAL INC	N/A	N/A	N/A	N/A
550	No Load	1.900	32	WPSGX	WPS	STEWART W.P. & CO INC	N/A	N/A	N/A	N/A
551	No Load	0.800	52	RMGPX	WIL	WILMINGTON TRUST/RODNEY SQUARE	1.12	-7.84	3.27	3.67
552		1.445	94				0.91	-7.29	1.78	3.29
553		1.350	78				0.85	-7.38	1.89	3.25
554										
555										

\rawdata / 1st 2 fund filters / MF selection #1 / MF selection #2 / MF selection #3 / Tracking TR / Possible method to AC selection

Fig. 5.5

Microsoft Excel - Patent #4 (RCS example)

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DV522 = 4.38

	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI
522	4 38	-1 86	-3.14	6.98	-2.97	-0.27	-1.29	5.79	4.96	10.48	-3.89	2.49	4.87	
523	4 42	-1 97	-3.17	7.06	-2 98	-0 14	-1 65	6.48	5 13	10.38	-3 93	3.07	6.41	
524	4 43	-2 05	-3.18	7 08	-2 99	-0 22	-1.65	6.51	5 08	10.37	-3 96	3.00	6.46	
525	4 74	3 73	-1 30	7 45	-4 12	-0 15	-3 40	5.39	5 04	9.98	-3.98	4 58	6.50	
526	N/A	N/A	N/A	2.34	-0 40	-2 29	-3.57	1.90	3 42	2.07	-4 95	-4.48	N/A	
527	8.05	0.86	-4.40	5 77	-1.85	-1 79	-1.44	9.25	14.08	22.22	-8.48	15.60	0.78	
528	7.25	-2 29	-4.48	10.44	-3.28	0 10	0.70	6.23	7.08	15.25	-2.76	15.62	5.13	
529	7.24	-2.38	-4 37	10.43	-3.28	0.20	0.70	6.32	7.06	15.20	-2.67	15 65	5.11	
530	6 59	4 93	-1.58	6.16	-4.99	-0.34	-4.19	3.92	3.38	4.48	-4.03	0.67	8.88	
531	6 66	0.33	-2.10	7.29	-3.74	-1 88	-3.12	4.24	3.94	6.57	-4.44	4.65	5.39	
532	6.51	-0.20	-4.15	7.53	-2.23	-0.92	-1.33	5.03	5.18	6.32	-5.79	1 86	9.09	
533	6 46	-0 62	-4.70	7.85	-2.60	0.06	-1.35	6.29	5.10	7.95	-5.86	1.83	11.03	
534	5 90	-0.15	-3.25	6.87	-0.54	2 86	-1.82	4.05	6.15	9.74	-5.01	2 42	6.67	
535	5.32	1.63	-1.85	7.73	-2.31	0.73	0.65	5.64	4.73	9.75	-2 54	3.03	9.02	
536	5.26	1.55	-1.87	7.70	-2.41	0.74	0.49	5.61	4.70	9.70	-2.64	2.99	9.00	
537	5 36	1.47	-1.87	7.71	-2.41	0.74	0.49	5.61	4.70	9.63	-2.57	2.92	9.01	
538	4.84	-0.18	-2.95	7.30	-3.18	1.36	-1.69	6.93	4.28	7.81	-6.67	2.06	9.21	
539	4.82	-0.21	-2.95	7.28	-3.15	1.33	-1.69	6.90	4.28	7.79	-6.67	2.07	9.21	
540	3 59	-0 80	-3.34	7 37	-3.62	0 78	-1 98	8.65	3.28	7.08	-5.56	2.14	9.03	
541	6.20	0 42	-3.49	8 80	-4.89	0 25	-3.82	8 63	3.65	11.00	-2.57	1 87	11.77	
542	6 15	0 39	-3.56	8.77	-4 94	0 20	-3 84	8.57	3.60	10.93	-2.59	1 82	11.72	
543	6 21	0 44	-3.50	8 83	-4 86	0 25	-3 79	8.63	3.68	11.00	-2 54	1 88	11.80	
544	5.53	-1.72	-2.50	10.80	-3.64	2.44	-0.80	10.51	5.31	8.93	1.00	9.14	8.98	
545	5.13	-0.06	-3.19	7.06	-3.19	2 59	-2.39	8.03	3.02	11.63	-6.79	3.51	8.22	
546	5.11	-0.06	-3.22	7.01	-3.19	2 54	-2.42	8.00	3.00	11.62	-6 83	3.47	8.21	
547	12.15	5.09	-5.61	8.01	-3.93	2 77	4.89	7.41	10.94	19.74	0.17	12.27	1.75	
548	12.70	4.67	-5.70	7.95	-3.96	2.53	4.81	7.36	10.85	19.70	0.09	12.18	1.69	
549	12.37	5.05	-5.60	7.97	-3.86	2.55	4.93	7.46	10.98	19.76	0.23	12.28	1.78	
550	0.95	-1.27	-6.10	5.95	-5.44	0.20	-0.84	7.08	-0.60	4.67	-4.63	-4.96	14.63	
551	4.00	-0.37	-2.75	8.74	-3.49	0 60	-1.20	8.22	7.37	21.69	-4.91	14.14	5.80	
552	6 09	0.25	-3.25	7.27	-3.12	1.65	-0.77	7.16	5.80	12.21	-4.04	7.57	5.37	
553	5 51	0.23	-3.18	7.26	-3.04	0.20	-0.99	7.10	5.18	11.16	-4.13	6.01	5.98	
554														
555														

\rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 5.6

Microsoft Excel - Patent #4 (RCS example)

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A1 = 1st toss out all without TR data before 1/31/95

	A	B	C	D	E	F	G	H	I	J
1	1st toss out all without TR data before 1/31/95									
2	2nd eliminate duplicate funds by same MF company and for same mandate (order of preference: lowest total expenses (1st no load, 2nd institutional load, 3rd front-end l									
3										
4										
5										
6										
7										
8					Latest		Pro			
9	Fund	L	L Cls	Latest	Total Net	Pro	IOB	Load	Latest Total	Turnover	NAS
10	Name	Cls	Descripton	TNA Date	Assets (Mil. $)	IOB	Description	Type	Expense Ratio	Portfolio	Syn
11										
12	WT:Wilm Lg Cap Gro;Instl	LCGE	Large-Cap Growth Funds	03/31/2000	320.0	G	Growth Funds	No Load	0.8	52	RM(
13	Wp Stewart Growth Fund	LCGE	Large-Cap Growth Funds	03/31/2000	76.3	G	Growth Funds	No Load	1.9	32	WP
14	WM:Growth;A	LCGE	Large-Cap Growth Funds	03/31/2000	414.7	G	Growth Funds	Front-End Load	1.272	119	SR(
15	Wilshire Tgt:LC Gr;Inv	LCGE	Large-Cap Growth Funds	03/31/2000	609.8	G	Growth Funds	No Load	0.73	57	DTL
16	White Oak Growth Stock	LCGE	Large-Cap Growth Funds	03/31/2000	3701.8	G	Growth Funds	No Load	1	6	WO
17	WellsFargo:Lg Co Gr,I	LCGE	Large-Cap Growth Funds	03/31/2000	1366.2	G	Growth Funds	Institutional Load	1	28	NVL
18	Vanguard US Growth	LCGE	Large-Cap Growth Funds	03/31/2000	20038.9	G	Growth Funds	No Load	0.39	49	VW
19	Vanguard Growth Indx;Inv	LCGE	Large-Cap Growth Funds	03/31/2000	16387.4	G	Growth Funds	No Load	0.22	29	VIG
20	Value Line Lvge Growth	LCGE	Large-Cap Growth Funds	03/31/2000	785.7	CA	Capital Appreciatic	No Load	0.87	54	VAL
21	Value Line Fund	LCGE	Large-Cap Growth Funds	03/31/2000	503.3	GI	Growth & Income I	No Load	0.77	98	VLIF
22	Universal Capital Growth	LCGE	Large-Cap Growth Funds	02/29/2000	18.3	CA	Capital Appreciatic	Front-End Load	2	71	UC(
23	United Vanguard Fund;A	LCGE	Large-Cap Growth Funds	03/31/2000	3013.2	G	Growth Funds	Front-End Load	1.13	84	UN\
24	UAM:Sirach Growth,Inst	LCGE	Large-Cap Growth Funds	03/31/2000	72.2	G	Growth Funds	Institutional Load	1.01	90	SGI
25	Turner Gro Equity	LCGE	Large-Cap Growth Funds	03/31/2000	309.2	CA	Capital Appreciatic	No Load	1.04	250	TRG
26	Trainer Worthm:First Mut	LCGE	Large-Cap Growth Funds	03/31/2000	74.9	CA	Capital Appreciatic	No Load	1.64	56	FMI
27	TCW Galileo:Sel Eq;Instl	LCGE	Large-Cap Growth Funds	03/31/2000	447.2	G	Growth Funds	Institutional Load	0.88	48	TGC
28	Target:Large Cap Growth	LCGE	Large-Cap Growth Funds	03/31/2000	615.4	G	Growth Funds	No Load	0.68	54	TAL
29	SunAmerica:Blue Chp;A	LCGE	Large-Cap Growth Funds	03/31/2000	147.9	G	Growth Funds	Front-End Load	1.49	71	SVL
30	Strong Total Return	LCGE	Large-Cap Growth Funds	03/31/2000	1950.6	GI	Growth & Income I	No Load	1	268	STR
31	Stein Roe Growth Stock	LCGE	Large-Cap Growth Funds	03/31/2000	1158.3	G	Growth Funds	No Load	0.94	36	SRI
32	SS Research Growth;S	LCGE	Large-Cap Growth Funds	03/31/2000	235.4	G	Growth Funds	Institutional Load	0.72	39	STS
33	Spectra Fund	LCGE	Large-Cap Growth Funds	03/31/2000	1098.3	CA	Capital Appreciatic	No Load	1.96	191	SPE
34	Sit Large Cap Growth	LCGE	Large-Cap Growth Funds	03/31/2000	178.2	GI	Growth & Income I	No Load	1	71	SNI

rawdata / 1st 2 fund filters / MF selection #1 / MF selection #2 / MF selection #3 / Tracking TR / Possible method to AC selection

Fig. 6.1

Microsoft Excel - Patent #4 (RCS example)

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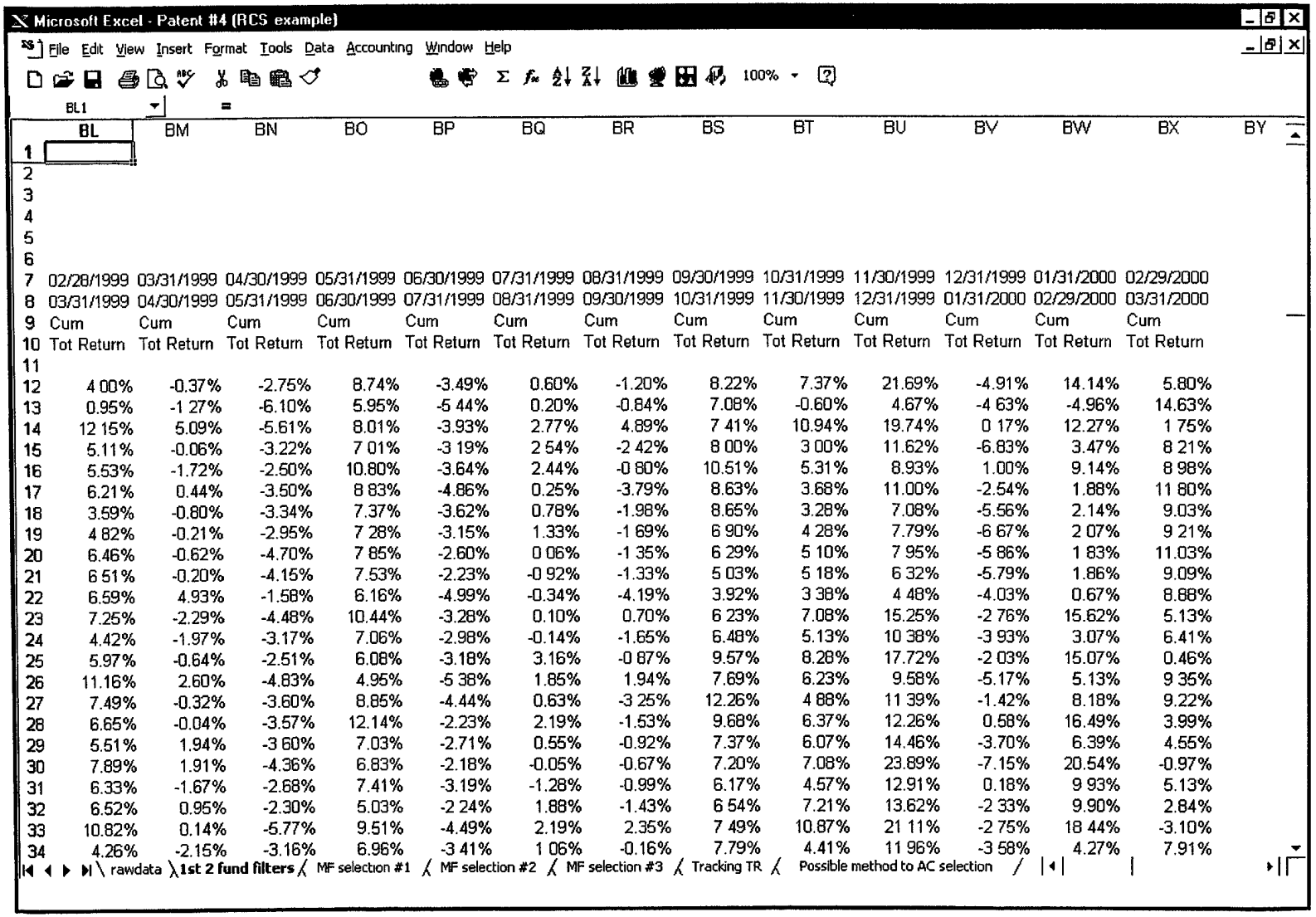
I1 =

stitutional load, 3rd front-end load, 4th level load, 5th back-end load))

Latest Total Expense Ratio	Turnover Portfolio	NASDAQ Symbol	Mgt Co. Code	Management Company Name	12/31/1994 01/31/1995 Cum Tot Return	01/31/1995 02/28/1995 Cum Tot Return	02/28/1995 03/31/1995 Cum Tot Return	03/31/1995 04/30/1995 Cum Tot Return	04/30/1995 05/31/1995 Cum Tot Return	05/31/1995 06/30/1995 Cum Tot Return
0 8	52	RMGPX	WIL	WILMINGTON TRUST/RODNEY SQUARE	0.40%	3.88%	2.22%	1 92%	0.61%	6.10%
1.9	32	WPSGX	WPS	STEWART W.P. & CO INC	2.99%	2.43%	2 16%	2.61%	3.11%	3.53%
1.272	119	SRGFX	WMS	WASHINGTON MUTUAL INC	1.11%	3.12%	2.04%	3.44%	3.79%	5.74%
0.73	57	DTLGX	WLS	WILSHIRE ASSOCIATES INC	2.81%	3.40%	2.86%	2.15%	3.81%	3.93%
1	6	WOGSX	OAK	OAK ASSOCIATES	1.96%	3.59%	2.95%	4 23%	5.04%	7.52%
1	28	NVLCX	WFB	WELLS FARGO BANK	2.05%	2.50%	2.97%	2.62%	3.11%	7.24%
0.39	49	VWUSX	VAN	VANGUARD GROUP INC	2.80%	3.81%	2.38%	3.70%	3 51%	2.95%
0.22	29	VIGRX	VAN	VANGUARD GROUP INC	2.53%	3.80%	3.11%	2.67%	3.56%	3.77%
0.87	54	VALLX	VAL	VALUE LINE INC	0.43%	5.54%	2.32%	2.47%	2.95%	6.75%
0.77	98	VLIFX	VAL	VALUE LINE INC	0.28%	4.51%	3.92%	1 67%	1.51%	3.73%
2	71	UCGFX	GBG	GRAVER BOKHOF GOODWIN & SULLIVAN LP	-1.34%	7.28%	1.97%	3 33%	2.55%	9.13%
1.13	84	UNVGX	WNR	WADDELL & REED INV MGMT CO	-0.85%	1.86%	1.82%	2 75%	2 01%	8.02%
1.01	90	SGRWX	UAM	UAM FUND SERVICES INC	1.07%	3.82%	2.04%	2.11%	1.87%	4.54%
1.04	250	TRGEX	TUR	TURNER INV PARTNERS INC	-0.34%	3.79%	1.50%	1.76%	2.36%	3.59%
1.64	56	FMFDX	TWC	TRAINER WORTHAM & CO INC	0.12%	2.88%	4.90%	3 23%	-0.22%	8.32%
0.88	48	TGCEX	TCW	TCW FUNDS MANAGEMENT INC	-2.01%	4.48%	2.59%	4.36%	2.92%	5.84%
0.68	54	TALGX	PRU	PRUDENTIAL INV FUND MGMT LLC	1.75%	2.42%	2 96%	2.30%	3.09%	3.27%
1.49	71	SVLAX	SAM	SUNAMERICA ASSET MGMT CORP	-0.14%	3.91%	3.69%	-0 20%	2.96%	2.48%
1	268	STRFX	SCC	STRONG CAPITAL MGMT	-0.08%	3.69%	2.92%	2.43%	1.55%	2.66%
0.94	36	SRFSX	SRF	STEIN ROE & FARNHAM INC	1.08%	3.32%	2.69%	2.71%	2.06%	4.03%
0.72	39	STSGX	SSR	STATE STREET RESEARCH & MGMT CO	2.54%	3.99%	2.78%	3.35%	3.12%	6.89%
1.96	191	SPECX	ALG	ALGER FRED MANAGEMENT INC	-0.96%	5.12%	3.32%	7.51%	3.11%	13.25%
1	71	SNIGX	SIT	SIT INVESTMENT ASSOCIATES INC	0.95%	3.66%	2 22%	1 61%	2.45%	5.90%

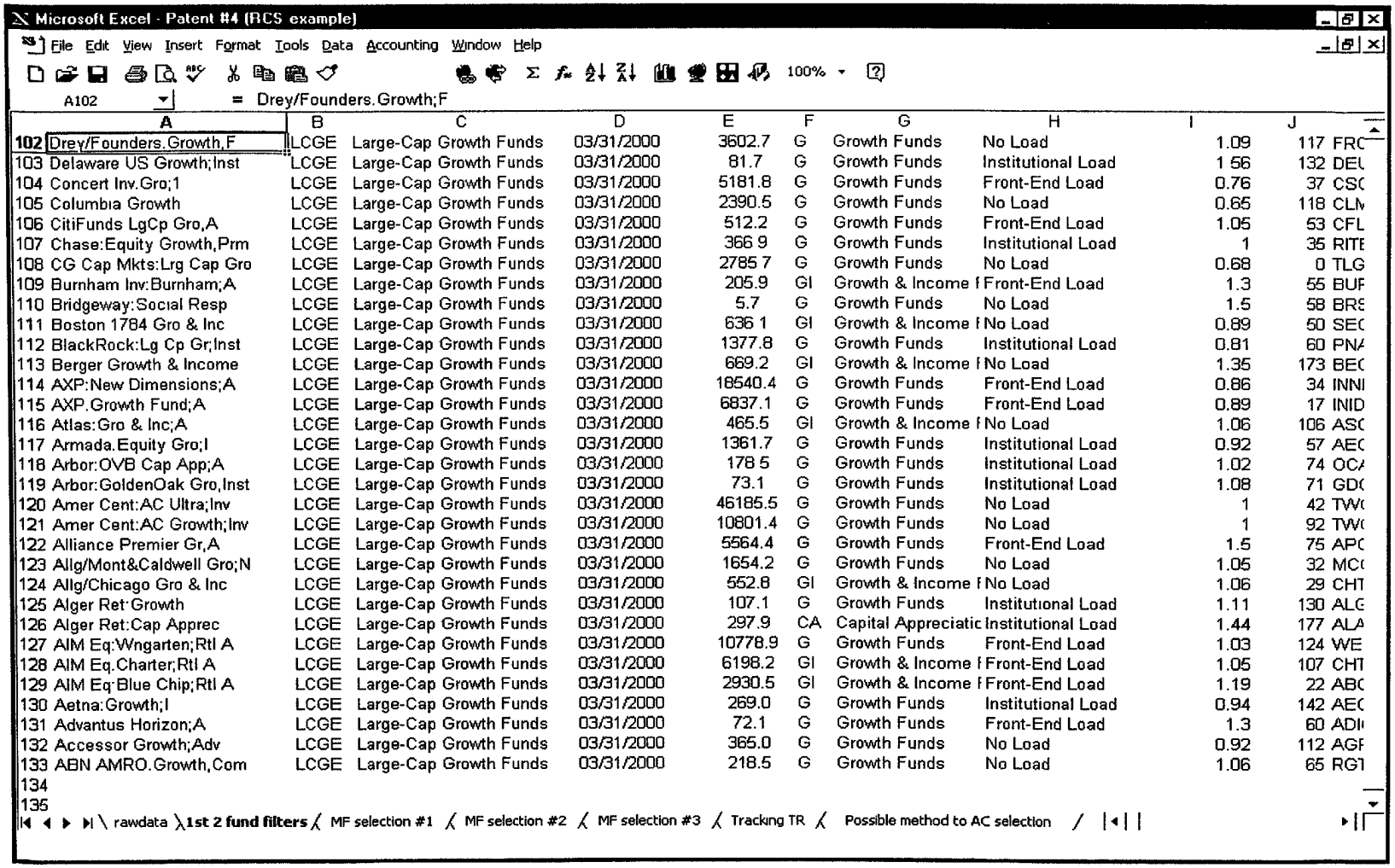
rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 6.2



	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY
1														
2														
3														
4														
5														
6														
7	02/28/1999	03/31/1999	04/30/1999	05/31/1999	06/30/1999	07/31/1999	08/31/1999	09/30/1999	10/31/1999	11/30/1999	12/31/1999	01/31/2000	02/29/2000	
8	03/31/1999	04/30/1999	05/31/1999	06/30/1999	07/31/1999	08/31/1999	09/30/1999	10/31/1999	11/30/1999	12/31/1999	01/31/2000	02/29/2000	03/31/2000	
9	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	Cum	
10	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	Tot Return	
11														
12	4 00%	-0.37%	-2.75%	8.74%	-3.49%	0.60%	-1.20%	8.22%	7.37%	21.69%	-4.91%	14.14%	5.80%	
13	0.95%	-1 27%	-6.10%	5.95%	-5 44%	0.20%	-0.84%	7.08%	-0.60%	4.67%	-4 63%	-4.96%	14.63%	
14	12 15%	5.09%	-5.61%	8.01%	-3.93%	2.77%	4.89%	7 41%	10.94%	19.74%	0 17%	12.27%	1 75%	
15	5.11%	-0.06%	-3.22%	7 01%	-3 19%	2 54%	-2 42%	8 00%	3 00%	11.62%	-6.83%	3.47%	8 21%	
16	5.53%	-1.72%	-2.50%	10.80%	-3.64%	2.44%	-0 80%	10.51%	5.31%	8.93%	1.00%	9.14%	8 98%	
17	6.21%	0.44%	-3.50%	8 83%	-4.86%	0.25%	-3.79%	8.63%	3.68%	11.00%	-2.54%	1.88%	11 80%	
18	3.59%	-0.80%	-3.34%	7.37%	-3.62%	0.78%	-1.98%	8.65%	3.28%	7.08%	-5.56%	2.14%	9.03%	
19	4 82%	-0.21%	-2.95%	7 28%	-3.15%	1.33%	-1 69%	6 90%	4 28%	7.79%	-6 67%	2 07%	9 21%	
20	6.46%	-0.62%	-4.70%	7 85%	-2.60%	0 06%	-1 35%	6 29%	5 10%	7 95%	-5 86%	1 83%	11.03%	
21	6 51%	-0.20%	-4.15%	7.53%	-2.23%	-0 92%	-1.33%	5 03%	5 18%	6 32%	-5.79%	1.86%	9.09%	
22	6.59%	4.93%	-1.58%	6.16%	-4.99%	-0.34%	-4.19%	3.92%	3 38%	4 48%	-4.03%	0.67%	8.88%	
23	7.25%	-2.29%	-4.48%	10.44%	-3.28%	0.10%	0.70%	6 23%	7.08%	15.25%	-2 76%	15.62%	5.13%	
24	4.42%	-1.97%	-3.17%	7.06%	-2.98%	-0.14%	-1.65%	6.48%	5.13%	10 38%	-3 93%	3.07%	6.41%	
25	5.97%	-0.64%	-2.51%	6.08%	-3.18%	3.16%	-0 87%	9.57%	8.28%	17.72%	-2 03%	15.07%	0.46%	
26	11.16%	2.60%	-4.83%	4.95%	-5 38%	1.85%	1.94%	7.69%	6.23%	9.58%	-5.17%	5.13%	9 35%	
27	7.49%	-0.32%	-3.60%	8.85%	-4.44%	0.63%	-3 25%	12.26%	4 88%	11 39%	-1.42%	8.18%	9.22%	
28	6.65%	-0.04%	-3.57%	12.14%	-2.23%	2.19%	-1.53%	9.68%	6.37%	12.26%	0.58%	16.49%	3.99%	
29	5.51%	1.94%	-3 60%	7.03%	-2.71%	0.55%	-0.92%	7.37%	6.07%	14.46%	-3.70%	6.39%	4.55%	
30	7.89%	1.91%	-4.36%	6.83%	-2.18%	-0.05%	-0.67%	7.20%	7.08%	23.89%	-7.15%	20.54%	-0.97%	
31	6.33%	-1.67%	-2.68%	7.41%	-3.19%	-1.28%	-0.99%	6.17%	4.57%	12.91%	0.18%	9 93%	5.13%	
32	6.52%	0.95%	-2.30%	5.03%	-2 24%	1.88%	-1.43%	6 54%	7.21%	13.62%	-2 33%	9.90%	2.84%	
33	10.82%	0.14%	-5.77%	9.51%	-4.49%	2.19%	2.35%	7 49%	10.87%	21 11%	-2 75%	18 44%	-3.10%	
34	4.26%	-2.15%	-3.16%	6.96%	-3 41%	1 06%	-0.16%	7.79%	4.41%	11 96%	-3 58%	4.27%	7.91%	

Fig. 6.3



	A	B	C	D	E	F	G	H	I	J
102	Drey/Founders.Growth,F	LCGE	Large-Cap Growth Funds	03/31/2000	3602.7	G	Growth Funds	No Load	1.09	117 FRC
103	Delaware US Growth;Inst	LCGE	Large-Cap Growth Funds	03/31/2000	81.7	G	Growth Funds	Institutional Load	1 56	132 DEL
104	Concert Inv.Gro;1	LCGE	Large-Cap Growth Funds	03/31/2000	5181.8	G	Growth Funds	Front-End Load	0.76	37 CSC
105	Columbia Growth	LCGE	Large-Cap Growth Funds	03/31/2000	2390.5	G	Growth Funds	No Load	0.65	118 CLM
106	CitiFunds LgCp Gro,A	LCGE	Large-Cap Growth Funds	03/31/2000	512.2	G	Growth Funds	Front-End Load	1.05	53 CFL
107	Chase:Equity Growth,Prm	LCGE	Large-Cap Growth Funds	03/31/2000	366 9	G	Growth Funds	Institutional Load	1	35 RITE
108	CG Cap Mkts:Lrg Cap Gro	LCGE	Large-Cap Growth Funds	03/31/2000	2785 7	G	Growth Funds	No Load	0.68	0 TLG
109	Burnham Inv:Burnham;A	LCGE	Large-Cap Growth Funds	03/31/2000	205.9	GI	Growth & Income F	Front-End Load	1.3	55 BUF
110	Bridgeway:Social Resp	LCGE	Large-Cap Growth Funds	03/31/2000	5.7	G	Growth Funds	No Load	1.5	58 BRS
111	Boston 1784 Gro & Inc	LCGE	Large-Cap Growth Funds	03/31/2000	636 1	GI	Growth & Income F	No Load	0.89	50 SEC
112	BlackRock:Lg Cp Gr;Inst	LCGE	Large-Cap Growth Funds	03/31/2000	1377.8	G	Growth Funds	Institutional Load	0.81	60 PNA
113	Berger Growth & Income	LCGE	Large-Cap Growth Funds	03/31/2000	669.2	GI	Growth & Income F	No Load	1.35	173 BEC
114	AXP:New Dimensions;A	LCGE	Large-Cap Growth Funds	03/31/2000	18540.4	G	Growth Funds	Front-End Load	0.86	34 INNI
115	AXP.Growth Fund;A	LCGE	Large-Cap Growth Funds	03/31/2000	6837.1	G	Growth Funds	Front-End Load	0.89	17 INID
116	Atlas:Gro & Inc;A	LCGE	Large-Cap Growth Funds	03/31/2000	465.5	GI	Growth & Income F	No Load	1.06	106 ASC
117	Armada.Equity Gro;I	LCGE	Large-Cap Growth Funds	03/31/2000	1361.7	G	Growth Funds	Institutional Load	0.92	57 AEC
118	Arbor:OVB Cap App;A	LCGE	Large-Cap Growth Funds	03/31/2000	178 5	G	Growth Funds	Institutional Load	1.02	74 OCA
119	Arbor:GoldenOak Gro,Inst	LCGE	Large-Cap Growth Funds	03/31/2000	73.1	G	Growth Funds	Institutional Load	1.08	71 GDC
120	Amer Cent:AC Ultra;Inv	LCGE	Large-Cap Growth Funds	03/31/2000	46185.5	G	Growth Funds	No Load	1	42 TWC
121	Amer Cent:AC Growth;Inv	LCGE	Large-Cap Growth Funds	03/31/2000	10801.4	G	Growth Funds	No Load	1	92 TWC
122	Alliance Premier Gr,A	LCGE	Large-Cap Growth Funds	03/31/2000	5564.4	G	Growth Funds	Front-End Load	1.5	75 APC
123	Allg/Mont&Caldwell Gro;N	LCGE	Large-Cap Growth Funds	03/31/2000	1654.2	G	Growth Funds	No Load	1.05	32 MCC
124	Allg/Chicago Gro & Inc	LCGE	Large-Cap Growth Funds	03/31/2000	552.8	GI	Growth & Income F	No Load	1.06	29 CHT
125	Alger Ret·Growth	LCGE	Large-Cap Growth Funds	03/31/2000	107.1	G	Growth Funds	Institutional Load	1.11	130 ALG
126	Alger Ret:Cap Apprec	LCGE	Large-Cap Growth Funds	03/31/2000	297.9	CA	Capital Appreciatic	Institutional Load	1.44	177 ALA
127	AIM Eq:Wngarten;Rtl A	LCGE	Large-Cap Growth Funds	03/31/2000	10778.9	G	Growth Funds	Front-End Load	1.03	124 WE
128	AIM Eq.Charter;Rtl A	LCGE	Large-Cap Growth Funds	03/31/2000	6198.2	GI	Growth & Income F	Front-End Load	1.05	107 CHT
129	AIM Eq·Blue Chip;Rtl A	LCGE	Large-Cap Growth Funds	03/31/2000	2930.5	GI	Growth & Income F	Front-End Load	1.19	22 ABC
130	Aetna:Growth;I	LCGE	Large-Cap Growth Funds	03/31/2000	269.0	G	Growth Funds	Institutional Load	0.94	142 AEC
131	Advantus Horizon;A	LCGE	Large-Cap Growth Funds	03/31/2000	72.1	G	Growth Funds	Front-End Load	1.3	60 ADI
132	Accessor Growth;Adv	LCGE	Large-Cap Growth Funds	03/31/2000	365.0	G	Growth Funds	No Load	0.92	112 AGF
133	ABN AMRO.Growth,Com	LCGE	Large-Cap Growth Funds	03/31/2000	218.5	G	Growth Funds	No Load	1.06	65 RGT
134										
135										

Fig. 6.4

Microsoft Excel - Patent #4 (RCS example)

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I102 = 1.09

	I	J	K	L	M	N	O	P	Q	R	S
102	1.09	117	FRGRX	FND	FOUNDERS ASSET MGMT INC	-0 69%	4.85%	3.96%	2.22%	3 34%	6.84%
103	1 56	132	DEUIX	DEL	DELAWARE MGMT CO INC	0 10%	2 16%	3 22%	-0 97%	4 72%	7.05%
104	0 76	37	CSGWX	SBS	SSB CITI FUND MANAGEMENT INC	0 95%	4 33%	1.94%	2.51%	3.97%	3 69%
105	0 65	118	CLMBX	COL	COLUMBIA FUNDS MGMT CO	0 24%	4 86%	3 60%	1 40%	2 26%	3 78%
106	1 05	53	CFLGX	CIT	CITIBANK N.A	0 64%	3 52%	2 45%	1 06%	3 22%	1 58%
107	1	35	RITEX	CMB	CHASE MANHATTAN BANK	0.98%	3.17%	2.65%	1.12%	2.46%	4.60%
108	0 68	0	TLGUX	SBS	SSB CITI FUND MANAGEMENT INC	1 95%	3.63%	2.82%	1.61%	3.82%	4.66%
109	1.3	55	BURHX	BUR	BURNHAM ASSET MGMT CORP	1.88%	2 36%	1.15%	2.25%	2 74%	1 71%
110	1.5	58	BRSRX	BRG	BRIDGEWAY CAPITAL MGMT	1 72%	4.37%	4.28%	1.46%	0.99%	3.29%
111	0.89	50	SEGWX	FBB	BANKBOSTON N.A.	1.43%	4 52%	2.36%	2.82%	4.29%	3 54%
112	0.81	60	PNAPX	BLK	BLACKROCK INC	0 60%	4.37%	3.90%	2 01%	2.51%	4.19%
113	1.35	173	BEOOX	BER	BERGER ASSOCIATES INC	-2.15%	2.67%	1.86%	3.42%	2.39%	2 94%
114	0.86	34	INNDX	IDS	IDS MUTUAL FUND GROUP	0.53%	3.67%	3.03%	3 08%	2.86%	4.69%
115	0.89	17	INIDX	IDS	IDS MUTUAL FUND GROUP	0.00%	4 58%	4.15%	2.43%	1.57%	7.60%
116	1.06	106	ASGIX	ATL	ATLAS ADVISERS INC	-0.52%	4.16%	4.46%	1 51%	1.28%	4.33%
117	0 92	57	AEQIX	NCC	NATIONAL CITY BANK	2.03%	2.43%	1.65%	1.89%	2 93%	2.98%
118	1.02	74	OCAAX	OVB	ONE VALLEY BANK N.A.	-1.62%	4.49%	2.00%	2.68%	4.01%	6.43%
119	1.08	71	GDGAX	CTZ	CITIZENS COMMERCIAL & SAVINGS	0 54%	1.87%	2 29%	1 28%	2 52%	4 13%
120	1	42	TWCUX	ACI	AMERICAN CENTURY INV INC	-2.96%	4.44%	3 21%	2 83%	2.00%	9 82%
121	1	92	TWCGX	ACI	AMERICAN CENTURY INV INC	-1.76%	3 42%	4.31%	3.78%	3 15%	4 70%
122	1.5	75	APGAX	ALL	ALLIANCE CAPITAL MGMT LP	2.73%	3.11%	3 82%	4 10%	5 67%	7.61%
123	1 05	32	MCGFX	CTT	CHICAGO TRUST COMPANY	2.35%	2 60%	3 54%	3 48%	3.82%	5.95%
124	1.06	29	CHTIX	CTT	CHICAGO TRUST COMPANY	1.68%	3 79%	1.57%	2 78%	2.88%	3.70%
125	1.11	130	ALGRX	ALG	ALGER FRED MANAGEMENT INC	-1 67%	5.08%	2.85%	5 07%	3.42%	9.81%
126	1.44	177	ALARX	ALG	ALGER FRED MANAGEMENT INC	-3 17%	8.87%	6.79%	6 18%	4.11%	14.21%
127	1.03	124	WEINX	AIM	AIM ADVISORS INC	-0 72%	5.10%	4.10%	2 60%	3.19%	6.23%
128	1.05	107	CHTRX	AIM	AIM ADVISORS INC	1.11%	3.65%	4.23%	2 94%	3.51%	4.25%
129	1.19	22	ABCAX	AIM	AIM ADVISORS INC	2.70%	2.89%	3.21%	3.21%	2.26%	2.76%
130	0.94	142	AEGRX	AET	AETNA LIFE INS & ANNTY	0.10%	2.96%	4.17%	2.40%	3 13%	5.90%
131	1.3	60	ADIOX	ADS	ADVANTUS CAPITAL MGMT	1.49%	3.52%	2.04%	0.72%	2 10%	4.48%
132	0.92	112	AGROX	ACS	ACCESSOR CAPITAL MGMT LP	2 30%	3.61%	2.98%	3.77%	4 31%	3.05%
133	1.06	65	RGTCX	ABN	ABN AMRO ASSET MGMT INC	0.87%	4 85%	2.39%	2 52%	3.59%	4.14%
134											
135						0.70%	3.63%	2.94%	2.31%	3.12%	5.14%

rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 6.5

Microsoft Excel - Patent #4 (RCS example)

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N105 = 0.24%

	N	O	P	Q	R	S	T
105	0.0024	0.0486	0.036	0.014	0.0226	0.0378	0.0395
106	0.0064	0.0352	0.0245	0.0106	0.0322	0.0158	0.0316
107	0.0098	0.0317	0.0265	0.0112	0.0246	0.046	0.0454
108	0.0195	0.0363	0.0282	0.0161	0.0382	0.0466	0.0403
109	0.0188	0.0236	0.0115	0.0225	0.0274	0.0171	0.0169
110	0.0172	0.0437	0.0428	0.0146	0.0099	0.0329	0.0439
111	0.0143	0.0452	0.0236	0.0282	0.0429	0.0354	0.0693
112	0.006	0.0437	0.039	0.0201	0.0251	0.0419	0.0448
113	-0.0215	0.0267	0.0186	0.0342	0.0239	0.0294	0.0379
114	0.0053	0.0367	0.0303	0.0308	0.0286	0.0469	0.048
115	0	0.0458	0.0415	0.0243	0.0157	0.076	0.0623
116	-0.0052	0.0416	0.0446	0.0151	0.0128	0.0433	0.0601
117	0.0203	0.0243	0.0165	0.0189	0.0293	0.0298	0.0418
118	-0.0162	0.0449	0.02	0.0268	0.0401	0.0643	0.0735
119	0.0054	0.0187	0.0229	0.0128	0.0252	0.0413	0.0367
120	-0.0296	0.0444	0.0321	0.0283	0.02	0.0982	0.1057
121	-0.0176	0.0342	0.0431	0.0378	0.0315	0.047	0.0508
122	0.0273	0.0311	0.0382	0.041	0.0567	0.0761	0.0556
123	0.0235	0.026	0.0354	0.0348	0.0382	0.0595	0.0439
124	0.0168	0.0379	0.0157	0.0278	0.0288	0.037	0.0287
125	-0.0167	0.0508	0.0285	0.0507	0.0342	0.0981	0.0925
126	-0.0317	0.0887	0.0679	0.0618	0.0411	0.1421	0.1382
127	-0.0072	0.051	0.041	0.026	0.0319	0.0623	0.0727
128	0.0111	0.0365	0.0423	0.0294	0.0351	0.0425	0.049
129	0.027	0.0289	0.0321	0.0321	0.0226	0.0276	0.0287
130	0.001	0.0296	0.0417	0.024	0.0313	0.059	0.0621
131	0.0149	0.0352	0.0204	0.0072	0.021	0.0448	0.0651
132	0.023	0.0361	0.0298	0.0377	0.0431	0.0305	0.0334
133	0.0087	0.0485	0.0239	0.0252	0.0359	0.0414	0.0605
134							
135	=AVERAGE(N12:N133)	=AVERAGE(O12:O133)	=AVERAGE(P12.P133)	=AVERAGE(Q12:Q133)	=AVERAGE(R12:R133)	=AVERAGE(S12.S133)	=AVERAGE(T12:T13
136							
137							
138							

rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 6.6

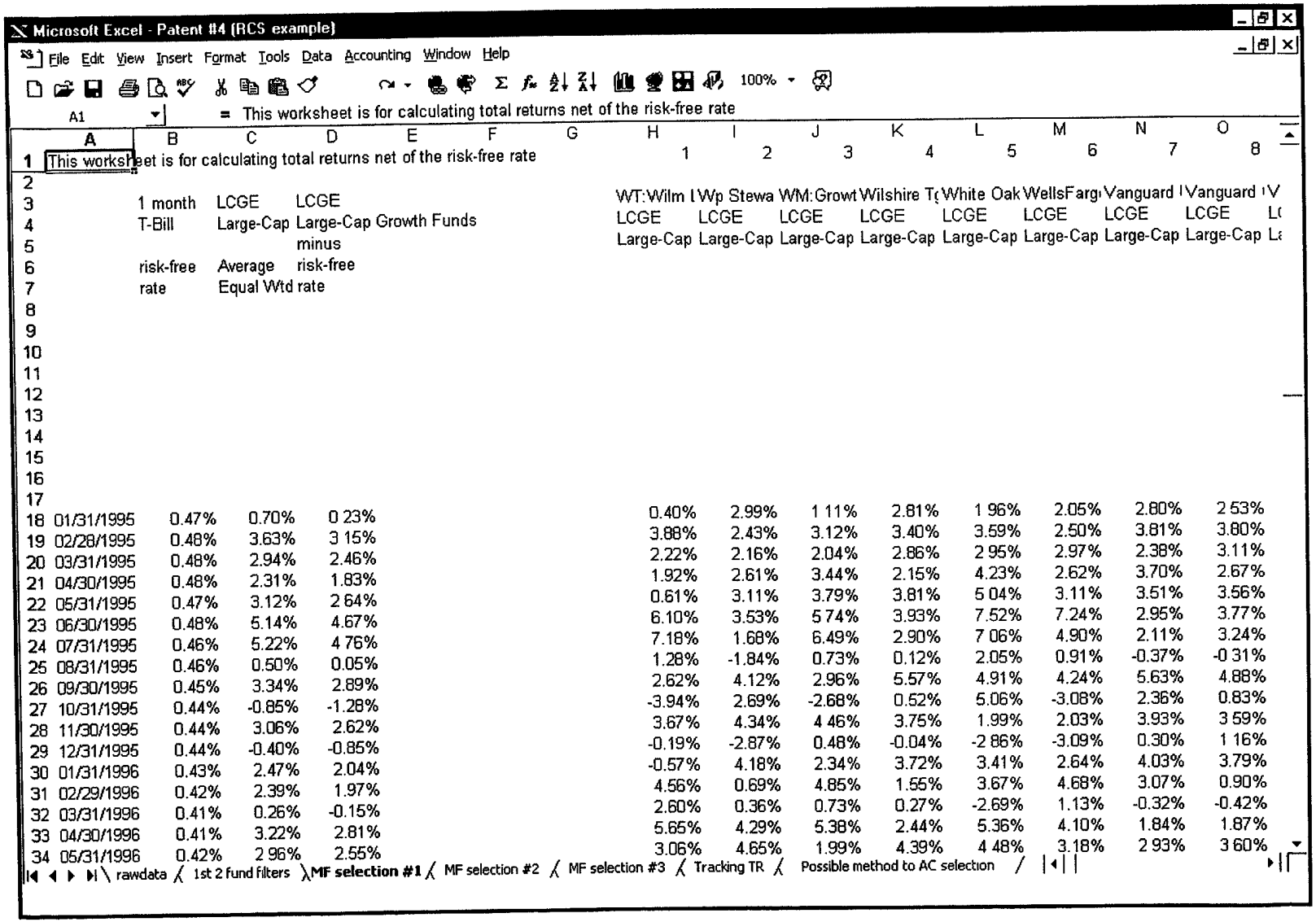
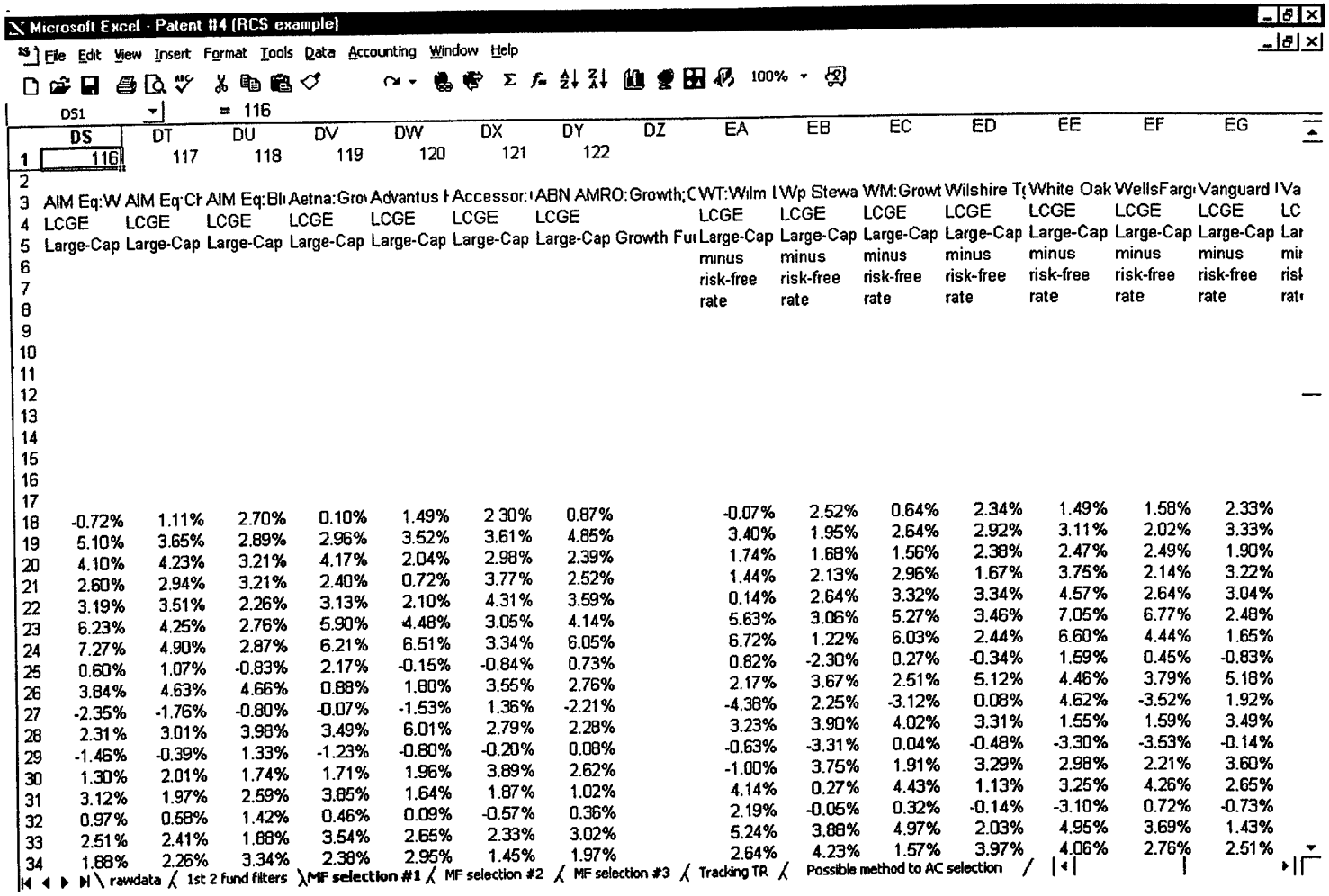

Microsoft Excel - Patent #4 (RCS example)
File Edit View Insert Format Tools Data Accounting Window Help
100%
A1
= This worksheet is for calculating total returns net of the risk-free rate
This worksheet is for calculating total returns net of the risk-free rate
1 month T-Bill risk-free rate
LCGE Large-Cap Average Equal Wtd
LCGE Large-Cap Growth Funds minus risk-free rate
WT:Wilm LCGE Large-Cap
Wp Stewa LCGE Large-Cap
WM:Growt LCGE Large-Cap
Wilshire T LCGE Large-Cap
White Oak LCGE Large-Cap
WellsFargo LCGE Large-Cap
Vanguard I LCGE Large-Cap
Vanguard I LCGE Large-Cap
01/31/1995 0.47% 0.70% 0 23% 0.40% 2.99% 1 11% 2.81% 1 96% 2.05% 2.80% 2 53%
02/28/1995 0.48% 3.63% 3 15% 3.88% 2.43% 3.12% 3.40% 3.59% 2.50% 3.81% 3.80%
03/31/1995 0.48% 2.94% 2.46% 2.22% 2.16% 2.04% 2.86% 2 95% 2.97% 2.38% 3.11%
04/30/1995 0.48% 2.31% 1.83% 1.92% 2.61% 3.44% 2.15% 4.23% 2.62% 3.70% 2.67%
05/31/1995 0.47% 3.12% 2 64% 0.61% 3.11% 3.79% 3.81% 5 04% 3.11% 3.51% 3.56%
06/30/1995 0.48% 5.14% 4.67% 6.10% 3.53% 5 74% 3.93% 7.52% 7.24% 2.95% 3.77%
07/31/1995 0.46% 5.22% 4 76% 7.18% 1.68% 6.49% 2.90% 7 06% 4.90% 2.11% 3.24%
08/31/1995 0.46% 0.50% 0.05% 1.28% -1.84% 0.73% 0.12% 2.05% 0.91% -0.37% -0 31%
09/30/1995 0.45% 3.34% 2.89% 2.62% 4.12% 2.96% 5.57% 4.91% 4.24% 5.63% 4.88%
10/31/1995 0.44% -0.85% -1.28% -3.94% 2.69% -2.68% 0.52% 5.06% -3.08% 2.36% 0.83%
11/30/1995 0.44% 3.06% 2.62% 3.67% 4.34% 4 46% 3.75% 1.99% 2.03% 3.93% 3 59%
12/31/1995 0.44% -0.40% -0.85% -0.19% -2.87% 0.48% -0.04% -2 86% -3.09% 0.30% 1 16%
01/31/1996 0.43% 2.47% 2.04% -0.57% 4.18% 2.34% 3.72% 3.41% 2.64% 4.03% 3.79%
02/29/1996 0.42% 2.39% 1.97% 4.56% 0.69% 4.85% 1.55% 3.67% 4.68% 3.07% 0.90%
03/31/1996 0.41% 0.26% -0.15% 2.60% 0.36% 0.73% 0.27% -2.69% 1.13% -0.32% -0.42%
04/30/1996 0.41% 3.22% 2.81% 5.65% 4.29% 5.38% 2.44% 5.36% 4.10% 1.84% 1.87%
05/31/1996 0.42% 2 96% 2.55% 3.06% 4.65% 1.99% 4.39% 4 48% 3.18% 2 93% 3 60%
rawdata
1st 2 fund filters
MF selection #1
MF selection #2
MF selection #3
Tracking TR
Possible method to AC selection

Fig. 7.1



Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

D51 = 116

	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG
1	116	117	118	119	120	121	122								
2															
3	AIM Eq:W	AIM Eq:Ch	AIM Eq:Bl	Aetna:Gro	Advantus I	Accessor:I	ABN AMRO:Growth;C		WT:Wilm I	Wp Stewa	WM:Growt	Wilshire T(	White Oak	WellsFargi	Vanguard I	Va
4	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE		LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LC
5	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Growth Fu	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Lar
6									minus	minus	minus	minus	minus	minus	minus	mi
7									risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risl
8									rate	rate	rate	rate	rate	rate	rate	rat
9																
10																
11																
12																
13																
14																
15																
16																
17																
18	-0.72%	1.11%	2.70%	0.10%	1.49%	2.30%	0.87%		-0.07%	2.52%	0.64%	2.34%	1.49%	1.58%	2.33%	
19	5.10%	3.65%	2.89%	2.96%	3.52%	3.61%	4.85%		3.40%	1.95%	2.64%	2.92%	3.11%	2.02%	3.33%	
20	4.10%	4.23%	3.21%	4.17%	2.04%	2.98%	2.39%		1.74%	1.68%	1.56%	2.38%	2.47%	2.49%	1.90%	
21	2.60%	2.94%	3.21%	2.40%	0.72%	3.77%	2.52%		1.44%	2.13%	2.96%	1.67%	3.75%	2.14%	3.22%	
22	3.19%	3.51%	2.26%	3.13%	2.10%	4.31%	3.59%		0.14%	2.64%	3.32%	3.34%	4.57%	2.64%	3.04%	
23	6.23%	4.25%	2.76%	5.90%	4.48%	3.05%	4.14%		5.63%	3.06%	5.27%	3.46%	7.05%	6.77%	2.48%	
24	7.27%	4.90%	2.87%	6.21%	6.51%	3.34%	6.05%		6.72%	1.22%	6.03%	2.44%	6.60%	4.44%	1.65%	
25	0.60%	1.07%	-0.83%	2.17%	-0.15%	-0.84%	0.73%		0.82%	-2.30%	0.27%	-0.34%	1.59%	0.45%	-0.83%	
26	3.84%	4.63%	4.66%	0.88%	1.80%	3.55%	2.76%		2.17%	3.67%	2.51%	5.12%	4.46%	3.79%	5.18%	
27	-2.35%	-1.76%	-0.80%	-0.07%	-1.53%	1.36%	-2.21%		-4.36%	2.25%	-3.12%	0.08%	4.62%	-3.52%	1.92%	
28	2.31%	3.01%	3.98%	3.49%	6.01%	2.79%	2.28%		3.23%	3.90%	4.02%	3.31%	1.55%	1.59%	3.49%	
29	-1.46%	-0.39%	1.33%	-1.23%	-0.80%	-0.20%	0.08%		-0.63%	-3.31%	0.04%	-0.48%	-3.30%	-3.53%	-0.14%	
30	1.30%	2.01%	1.74%	1.71%	1.96%	3.89%	2.62%		-1.00%	3.75%	1.91%	3.29%	2.98%	2.21%	3.60%	
31	3.12%	1.97%	2.59%	3.85%	1.64%	1.87%	1.02%		4.14%	0.27%	4.43%	1.13%	3.25%	4.26%	2.65%	
32	0.97%	0.58%	1.42%	0.46%	0.09%	-0.57%	0.36%		2.19%	-0.05%	0.32%	-0.14%	-3.10%	0.72%	-0.73%	
33	2.51%	2.41%	1.88%	3.54%	2.65%	2.33%	3.02%		5.24%	3.88%	4.97%	2.03%	4.95%	3.69%	1.43%	
34	1.88%	2.26%	3.34%	2.38%	2.95%	1.45%	1.97%		2.64%	4.23%	1.57%	3.97%	4.06%	2.76%	2.51%	

rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 7.2

009280"22584960

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

IE1 =

Row	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS
1															
2															
3	Amer Cent	Amer Cent	Alliance P	Allg/Mont8	Allg/Chica	Alger Ret:(	Alger Ret (	AIM Eq W	AIM Eq.Ch	AIM Eq Bl	Aetna:Gro	Advantus I	Accessor.I	ABN AMRO:Growth,Com	
4	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	
5	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap Growth Funds	
6	minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	
7	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	
8	rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	
9															
10															
11															
12															
13															
14															
15															
16															
17															
18	-3.43%	-2.23%	2.26%	1.88%	1.21%	-2.14%	-3.64%	-1.19%	0.64%	2.23%	-0.37%	1.02%	1.83%	0.40%	
19	3.96%	2.94%	2.63%	2.12%	3.31%	4.60%	8.39%	4.62%	3.17%	2.41%	2.48%	3.04%	3.13%	4.37%	
20	2.73%	3.83%	3.34%	3.06%	1.09%	2.37%	6.31%	3.62%	3.75%	2.73%	3.69%	1.56%	2.50%	1.91%	
21	2.35%	3.30%	3.62%	3.00%	2.30%	4.59%	5.70%	2.12%	2.46%	2.73%	1.92%	0.24%	3.29%	2.04%	
22	1.53%	2.68%	5.20%	3.35%	2.41%	2.95%	3.64%	2.72%	3.04%	1.79%	2.66%	1.63%	3.84%	3.12%	
23	9.35%	4.23%	7.14%	5.48%	3.23%	9.34%	13.74%	5.76%	3.78%	2.29%	5.43%	4.01%	2.58%	3.67%	
24	10.11%	4.62%	5.10%	3.93%	2.41%	8.79%	13.36%	6.81%	4.44%	2.41%	5.75%	6.05%	2.88%	5.59%	
25	0.03%	1.46%	0.50%	-2.36%	0.28%	1.18%	1.01%	0.14%	0.61%	-1.29%	1.71%	-0.61%	-1.30%	0.27%	
26	3.56%	2.78%	4.77%	2.35%	4.78%	2.36%	2.37%	3.39%	4.18%	4.21%	0.43%	1.35%	3.10%	2.31%	
27	0.46%	-3.41%	-0.31%	3.10%	-0.28%	-4.08%	-6.15%	-2.79%	-2.20%	-1.24%	-0.51%	-1.97%	0.92%	-2.65%	
28	0.52%	-1.45%	3.03%	2.83%	3.13%	0.25%	-0.05%	1.87%	2.57%	3.54%	3.05%	5.57%	2.35%	1.84%	
29	-3.38%	-5.04%	-3.32%	-0.89%	1.51%	-1.12%	-3.73%	-1.90%	-0.83%	0.89%	-1.67%	-1.24%	-0.64%	-0.36%	
30	0.11%	2.66%	2.42%	4.16%	3.42%	3.26%	1.35%	0.87%	1.58%	1.31%	1.28%	1.53%	3.46%	2.19%	
31	4.53%	1.23%	3.23%	4.18%	1.00%	0.99%	3.24%	2.70%	1.55%	2.17%	3.43%	1.22%	1.45%	0.60%	
32	-4.00%	-2.38%	-1.06%	-1.46%	0.36%	-1.72%	-2.79%	0.56%	0.17%	1.01%	0.05%	-0.32%	-0.98%	-0.05%	
33	4.37%	3.05%	1.76%	2.26%	1.75%	3.06%	7.69%	2.10%	2.00%	1.47%	3.13%	2.24%	1.92%	2.61%	
34	4.36%	2.20%	2.80%	4.51%	2.52%	0.94%	3.14%	1.46%	1.84%	2.92%	1.96%	2.53%	1.03%	1.55%	

rawdata / 1st 2 fund filters / **MF selection #1** / MF selection #2 / MF selection #3 / Tracking TR / Possible method to AC selection

Fig. 7.3

Microsoft Excel - Patent #4 (RCS example)

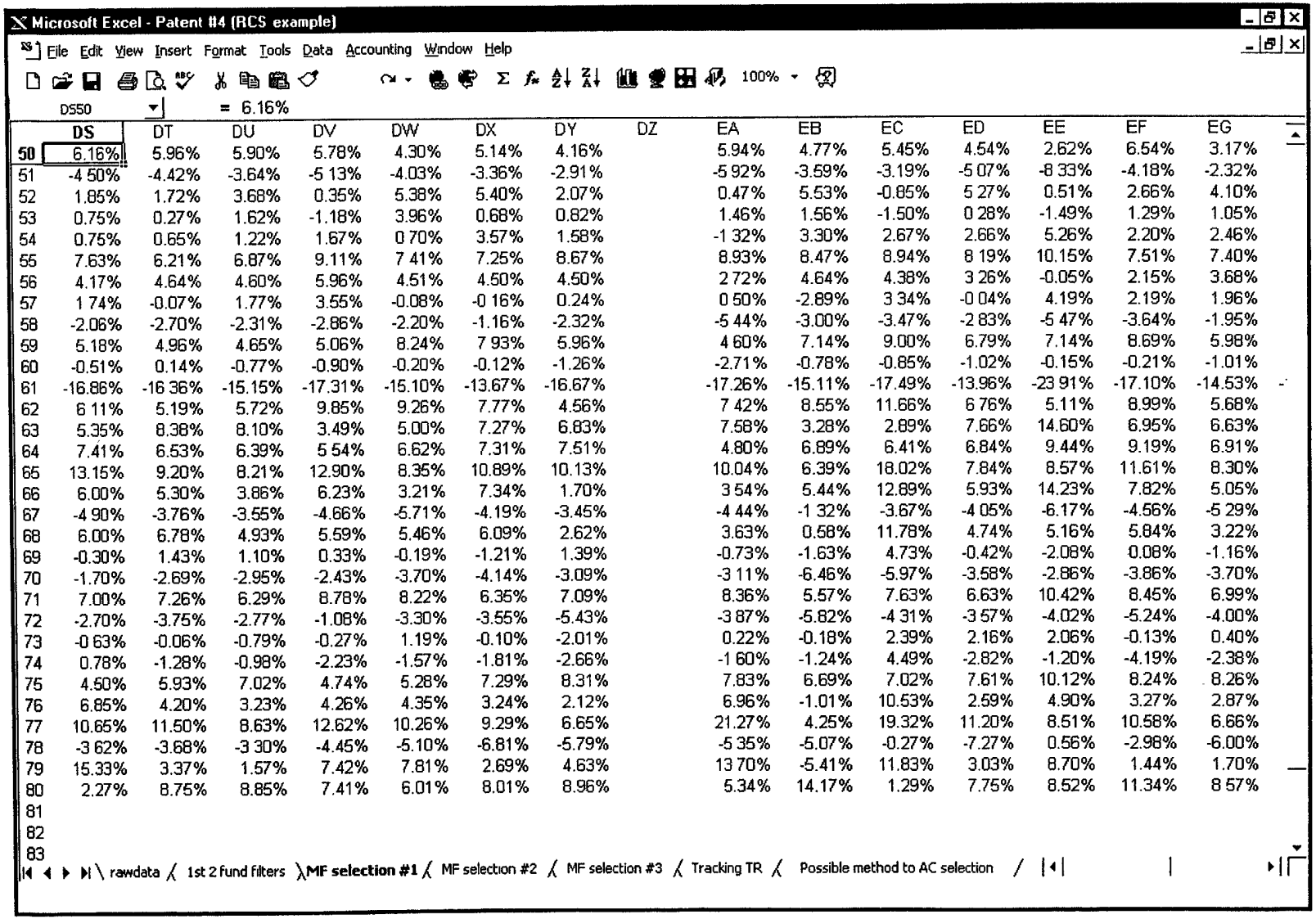
File Edit View Insert Format Tools Data Accounting Window Help

A50 = 09/30/1997

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	09/30/1997	0.43%	5.42%	4.99%				6.37%	5.20%	5.88%	4.97%	3.05%	6.97%	3.60%	5.08%
51	10/31/1997	0 41%	-3.68%	-4.09%				-5.51%	-3.18%	-2.78%	-4.66%	-7.92%	-3.77%	-1.91%	-2 99%
52	11/30/1997	0 41%	2.20%	1.78%				0.88%	5 94%	-0.44%	5.68%	0.92%	3.07%	4.51%	5.41%
53	12/31/1997	0.43%	1.11%	0.68%				1.89%	1 99%	-1.07%	0.71%	-1.06%	1.72%	1.48%	1.20%
54	01/31/1998	0.43%	1.48%	1 05%				-0 89%	3.73%	3.10%	3 09%	5.69%	2 63%	2.89%	3.37%
55	02/28/1998	0 42%	7.83%	7 41%				9.35%	8.89%	9.36%	8.61%	10.57%	7.93%	7.82%	6.91%
56	03/31/1998	0.43%	4.58%	4 16%				3 15%	5.07%	4.81%	3.69%	0.38%	2.58%	4.11%	5.14%
57	04/30/1998	0.42%	1.59%	1 17%				0.92%	-2.47%	3.76%	0.38%	4.61%	2.61%	2.38%	0.84%
58	05/31/1998	0.42%	-2.65%	-3 07%				-5.02%	-2.58%	-3.05%	-2.41%	-5.05%	-3.22%	-1.53%	-2.01%
59	06/30/1998	0.42%	6.25%	5.83%				5.02%	7.56%	9.42%	7.21%	7.56%	9.11%	6.40%	7.13%
60	07/31/1998	0.42%	-0.70%	-1.11%				-2.29%	-0.36%	-0.43%	-0.60%	0.27%	0.21%	-0.59%	-0.04%
61	08/31/1998	0.41%	-16.46%	-16.87%				-16.85%	-14.70%	-17.08%	-13.55%	-23.50%	-16.69%	-14.12%	-13.04%
62	09/30/1998	0.41%	7.50%	7.09%				7.83%	8.96%	12.07%	7.17%	5.52%	9.40%	6.09%	6.70%
63	10/31/1998	0.40%	6.31%	5.92%				7.97%	3.67%	3 28%	8.05%	14.99%	7.34%	7.02%	8.41%
64	11/30/1998	0.34%	6.97%	6.63%				5.14%	7.23%	6.75%	7.18%	9.78%	9.53%	7.25%	6.78%
65	12/31/1998	0.37%	10.80%	10.43%				10.41%	6.76%	18.39%	8.21%	8.94%	11.98%	8.67%	7.67%
66	01/31/1999	0.36%	6.86%	6.50%				3.90%	5.80%	13.25%	6.29%	14.59%	8.18%	5.41%	6.16%
67	02/28/1999	0.36%	-4.17%	-4.53%				-4.08%	-0.96%	-3 31%	-3.69%	-5.81%	-4.20%	-4.93%	-3.93%
68	03/31/1999	0.37%	6.15%	5.78%				4 00%	0.95%	12 15%	5.11%	5.53%	6.21%	3.59%	4 82%
69	04/30/1999	0.36%	0.21%	-0.15%				-0.37%	-1.27%	5 09%	-0.06%	-1.72%	0 44%	-0.80%	-0.21%
70	05/31/1999	0.36%	-3.30%	-3.66%				-2.75%	-6.10%	-5 61%	-3.22%	-2.50%	-3 50%	-3.34%	-2.95%
71	06/30/1999	0.38%	7.29%	6.92%				8.74%	5.95%	8.01%	7.01%	10 80%	8 83%	7.37%	7.28%
72	07/31/1999	0.38%	-3.16%	-3.54%				-3.49%	-5.44%	-3.93%	-3.19%	-3.64%	-4.86%	-3.62%	-3.15%
73	08/31/1999	0.38%	0.38%	0.00%				0.60%	0.20%	2.77%	2.54%	2.44%	0.25%	0.78%	1.33%
74	09/30/1999	0.40%	-0.85%	-1.25%				-1.20%	-0.84%	4.89%	-2.42%	-0.80%	-3.79%	-1.98%	-1.69%
75	10/31/1999	0.39%	7.09%	6.69%				8.22%	7.08%	7.41%	8.00%	10.51%	8.63%	8.65%	6.90%
76	11/30/1999	0.41%	5.61%	5.21%				7.37%	-0.60%	10.94%	3.00%	5.31%	3.68%	3.28%	4.28%
77	12/31/1999	0.42%	11.94%	11.52%				21.69%	4.67%	19.74%	11.62%	8 93%	11.00%	7.08%	7.79%
78	01/31/2000	0.44%	-3.84%	-4.27%				-4.91%	-4.63%	0.17%	-6.83%	1.00%	-2.54%	-5.56%	-6.67%
79	02/29/2000	0.45%	6.81%	6.37%				14.14%	-4.96%	12.27%	3.47%	9.14%	1.88%	2.14%	2.07%
80	03/31/2000	0.46%	5.61%	5.14%				5.80%	14.63%	. 1.75%	8.21%	8.98%	11.80%	9.03%	9.21%
81															
82															
83															

rawdata | 1st 2 fund filters | **MF selection #1** | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 7.4



	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG
50	6.16%	5.96%	5.90%	5.78%	4.30%	5.14%	4.16%		5.94%	4.77%	5.45%	4.54%	2.62%	6.54%	3.17%
51	-4 50%	-4.42%	-3.64%	-5 13%	-4.03%	-3.36%	-2.91%		-5 92%	-3.59%	-3.19%	-5 07%	-8 33%	-4.18%	-2.32%
52	1.85%	1.72%	3.68%	0.35%	5.38%	5.40%	2.07%		0.47%	5.53%	-0.85%	5 27%	0.51%	2.66%	4.10%
53	0.75%	0.27%	1.62%	-1.18%	3.96%	0.68%	0.82%		1.46%	1.56%	-1.50%	0 28%	-1.49%	1.29%	1.05%
54	0.75%	0.65%	1.22%	1.67%	0 70%	3.57%	1.58%		-1 32%	3.30%	2.67%	2.66%	5.26%	2.20%	2.46%
55	7.63%	6.21%	6.87%	9.11%	7 41%	7.25%	8.67%		8.93%	8.47%	8.94%	8 19%	10.15%	7.51%	7.40%
56	4.17%	4.64%	4.60%	5.96%	4.51%	4.50%	4.50%		2 72%	4.64%	4.38%	3 26%	-0.05%	2.15%	3.68%
57	1 74%	-0.07%	1.77%	3.55%	-0.08%	-0 16%	0.24%		0 50%	-2.89%	3 34%	-0 04%	4.19%	2.19%	1.96%
58	-2.06%	-2.70%	-2.31%	-2.86%	-2.20%	-1.16%	-2.32%		-5 44%	-3.00%	-3.47%	-2 83%	-5 47%	-3.64%	-1.95%
59	5.18%	4.96%	4.65%	5.06%	8.24%	7 93%	5.96%		4 60%	7.14%	9.00%	6.79%	7.14%	8.69%	5.98%
60	-0.51%	0.14%	-0.77%	-0.90%	-0.20%	-0.12%	-1.26%		-2.71%	-0.78%	-0.85%	-1.02%	-0.15%	-0.21%	-1.01%
61	-16.86%	-16 36%	-15.15%	-17.31%	-15.10%	-13.67%	-16.67%		-17.26%	-15.11%	-17.49%	-13.96%	-23 91%	-17.10%	-14.53%
62	6 11%	5.19%	5.72%	9.85%	9.26%	7.77%	4.56%		7 42%	8.55%	11.66%	6 76%	5.11%	8.99%	5.68%
63	5.35%	8.38%	8.10%	3.49%	5.00%	7.27%	6.83%		7.58%	3.28%	2.89%	7.66%	14.60%	6.95%	6.63%
64	7.41%	6.53%	6.39%	5 54%	6.62%	7.31%	7.51%		4.80%	6.89%	6.41%	6.84%	9.44%	9.19%	6.91%
65	13.15%	9.20%	8.21%	12.90%	8.35%	10.89%	10.13%		10.04%	6.39%	18.02%	7.84%	8.57%	11.61%	8.30%
66	6.00%	5.30%	3.86%	6.23%	3.21%	7.34%	1.70%		3 54%	5.44%	12.89%	5.93%	14.23%	7.82%	5.05%
67	-4 90%	-3.76%	-3.55%	-4.66%	-5.71%	-4.19%	-3.45%		-4 44%	-1 32%	-3.67%	-4 05%	-6.17%	-4.56%	-5 29%
68	6.00%	6.78%	4.93%	5.59%	5.46%	6.09%	2.62%		3.63%	0.58%	11.78%	4.74%	5.16%	5.84%	3.22%
69	-0.30%	1.43%	1.10%	0.33%	-0.19%	-1.21%	1.39%		-0.73%	-1.63%	4.73%	-0.42%	-2.08%	0.08%	-1.16%
70	-1.70%	-2.69%	-2.95%	-2.43%	-3.70%	-4.14%	-3.09%		-3 11%	-6.46%	-5.97%	-3.58%	-2.86%	-3.86%	-3.70%
71	7.00%	7.26%	6.29%	8.78%	8.22%	6.35%	7.09%		8.36%	5.57%	7.63%	6.63%	10.42%	8.45%	6.99%
72	-2.70%	-3.75%	-2.77%	-1.08%	-3.30%	-3.55%	-5.43%		-3 87%	-5.82%	-4 31%	-3 57%	-4.02%	-5.24%	-4.00%
73	-0 63%	-0.06%	-0.79%	-0.27%	1.19%	-0.10%	-2.01%		0.22%	-0.18%	2.39%	2.16%	2.06%	-0.13%	0.40%
74	0.78%	-1.28%	-0.98%	-2.23%	-1.57%	-1.81%	-2.66%		-1 60%	-1.24%	4.49%	-2.82%	-1.20%	-4.19%	-2.38%
75	4.50%	5.93%	7.02%	4.74%	5.28%	7.29%	8.31%		7.83%	6.69%	7.02%	7.61%	10.12%	8.24%	8.26%
76	6.85%	4.20%	3.23%	4.26%	4.35%	3.24%	2.12%		6.96%	-1.01%	10.53%	2.59%	4.90%	3.27%	2.87%
77	10.65%	11.50%	8.63%	12.62%	10.26%	9.29%	6.65%		21.27%	4.25%	19.32%	11.20%	8.51%	10.58%	6.66%
78	-3 62%	-3.68%	-3 30%	-4.45%	-5.10%	-6.81%	-5.79%		-5 35%	-5.07%	-0.27%	-7.27%	0.56%	-2.98%	-6.00%
79	15.33%	3.37%	1.57%	7.42%	7.81%	2.69%	4.63%		13 70%	-5.41%	11.83%	3.03%	8.70%	1.44%	1.70%
80	2.27%	8.75%	8.85%	7.41%	6.01%	8.01%	8.96%		5.34%	14.17%	1.29%	7.75%	8.52%	11.34%	8 57%
81															
82															
83															

Fig. 7.5

Microsoft Excel - Patent #4 (RCS example)

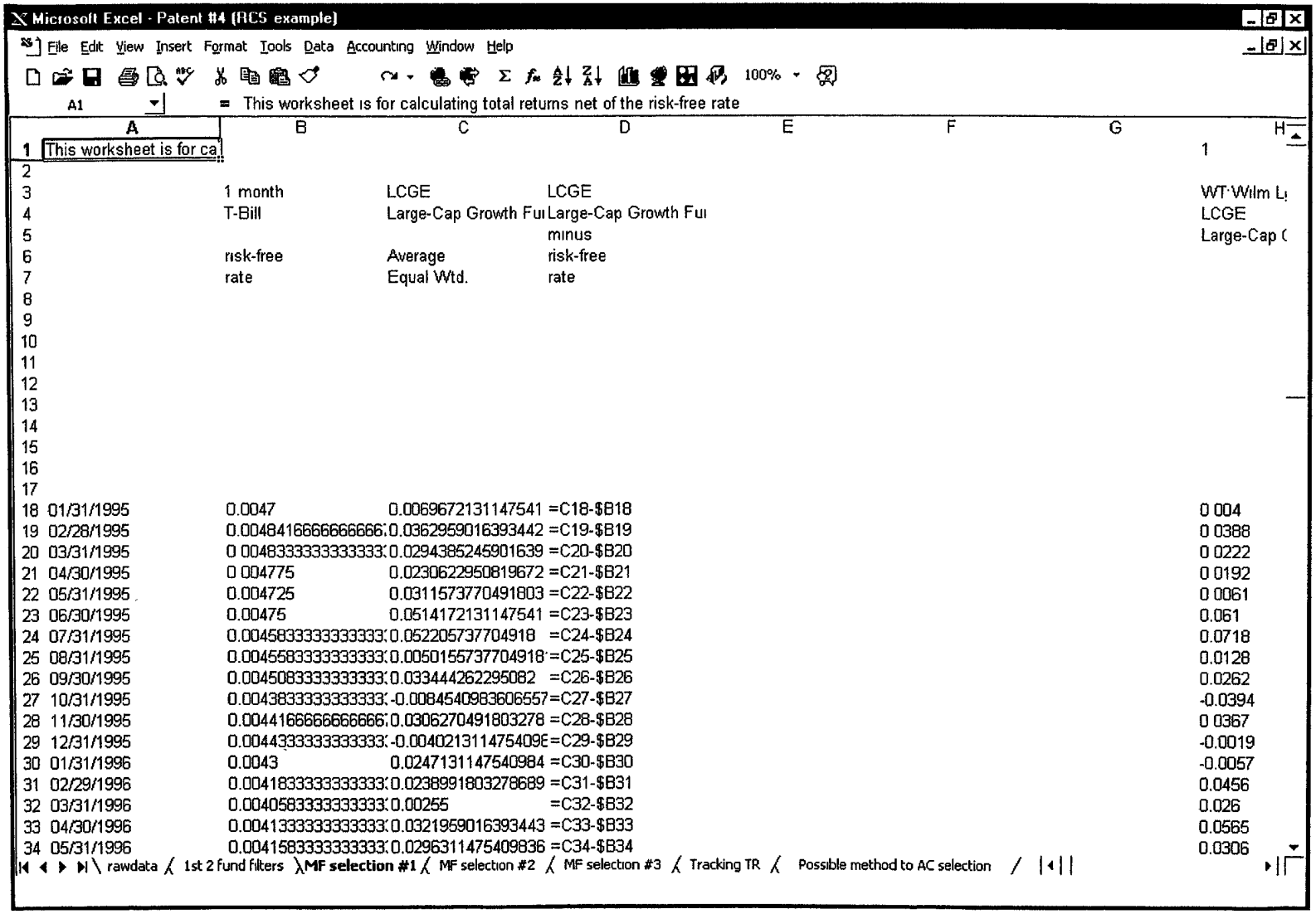
File Edit View Insert Format Tools Data Accounting Window Help

IE50 = =DL50-$B50

	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS
50	5.16%	6.49%	6.26%	4.63%	2.34%	4.95%	5.39%	5 73%	5.53%	5.47%	5.35%	3 87%	4.71%	3.73%	
51	-6.66%	-5.06%	-6.29%	-3.65%	-1.86%	-5 60%	-6.78%	-4.91%	-4 83%	-4.05%	-5 54%	-4 44%	-3.77%	-3.32%	
52	1.65%	0.77%	2 11%	1.49%	3.04%	1.07%	1.03%	1.44%	1 31%	3.27%	-0.06%	4 97%	4.99%	1 66%	
53	0.85%	-0.09%	0 46%	1 12%	1.64%	-0 70%	-1.65%	0 32%	-0 16%	1.19%	-1 61%	3 53%	0.25%	0 39%	
54	1.33%	1.99%	4 35%	1.81%	1.01%	0 85%	0.60%	0.32%	0 22%	0.79%	1.24%	0 27%	3.14%	1 15%	
55	7.03%	5.80%	10.12%	8.25%	8.67%	7.63%	6.61%	7 21%	5.79%	6.45%	8.69%	6.99%	6.83%	8.25%	
56	5.60%	5.43%	3.53%	1.39%	4.26%	5.60%	4.80%	3.74%	4 21%	4.17%	5.53%	4 08%	4 07%	4 07%	
57	1.03%	1.21%	2.38%	2.77%	-0.06%	0.76%	2.93%	1.32%	-0 49%	1.35%	3.13%	-0 50%	-0.58%	-0.18%	
58	-2.13%	-2.80%	-2 13%	-2.63%	-3.43%	-1.59%	-1.82%	-2.48%	-3 12%	-2.73%	-3.28%	-2 62%	-1.58%	-2.74%	
59	6.84%	7.56%	6.13%	5.71%	6.33%	8.74%	10.23%	4.76%	4.54%	4.23%	4.64%	7.82%	7.51%	5.54%	
60	0.23%	-1.10%	1 85%	-2.29%	-1.99%	2.55%	1.01%	-0.93%	-0 28%	-1.19%	-1.32%	-0 62%	-0.54%	-1 68%	
61	-18.67%	-14.41%	-18.69%	-15.71%	-16.98%	-17.08%	-18.13%	-17.27%	-16.77%	-15.56%	-17.72%	-15 51%	-14.08%	-17.08%	
62	6.81%	7.34%	4 76%	2.75%	10.38%	8 16%	14.35%	5.70%	4.78%	5.31%	9.44%	8 85%	7.36%	4.15%	
63	3.63%	2.43%	9.74%	9.30%	8.08%	4.62%	3.67%	4.96%	7 99%	7.71%	3.10%	4 61%	6.88%	6.44%	
64	5.84%	5.94%	5.47%	6.61%	3.95%	7.26%	9.57%	7.07%	6.19%	6.05%	5.20%	6.28%	6.97%	7.17%	
65	11.02%	9.90%	12 10%	7.84%	8.96%	12.10%	15.94%	12.78%	8.83%	7.84%	12.53%	7 98%	10.52%	9.76%	
66	6.70%	6.05%	9.32%	5.47%	3.88%	6.92%	12.10%	5.64%	4 94%	3.50%	5.87%	2.85%	6.98%	1.34%	
67	-3.10%	-5.52%	-4.94%	-3.83%	-2.30%	-3.22%	-2.14%	-5.26%	-4.12%	-3.91%	-5.02%	-6.07%	-4.55%	-3.81%	
68	5.55%	5.87%	4.11%	5.21%	4.02%	6 87%	13.51%	5.63%	6.41%	4.56%	5.22%	5.09%	5.72%	2.25%	
69	-0.88%	-1.01%	-1.96%	-1 33%	3.39%	-0.24%	3.59%	-0 66%	1 07%	0.74%	-0.03%	-0 55%	-1.57%	1.03%	
70	-2.90%	-3.16%	-4 14%	-2.19%	-4.30%	-4 90%	-5.36%	-2.06%	-3 05%	-3.31%	-2.79%	-4 06%	-4.50%	-3.45%	
71	4.77%	6.63%	8 94%	4.22%	6.16%	9.66%	7.68%	6 62%	6 88%	5.91%	8.40%	7 84%	5.97%	6.71%	
72	-3.68%	-2.94%	-3.56%	-2.29%	-4.55%	-4.04%	-3.83%	-3.08%	-4 13%	-3.15%	-1.46%	-3 68%	-3.93%	-5.81%	
73	-0.77%	1.29%	-1.13%	1.88%	-0.57%	-2.01%	3.06%	-1.01%	-0.44%	-1.17%	-0.65%	0.81%	-0.48%	-2.39%	
74	-1.53%	-1.14%	-1.95%	-5.80%	-0.36%	-0.95%	1.26%	0.38%	-1.68%	-1.38%	-2.63%	-1.97%	-2.21%	-3.06%	
75	8.53%	6.40%	7.26%	7.00%	2.93%	5.53%	5.43%	4.11%	5.54%	6.63%	4.35%	4.89%	6.90%	7.92%	
76	4.70%	5.44%	2.28%	4.75%	1.47%	5.71%	11.82%	6.44%	3.79%	2.82%	3.85%	3.94%	2.83%	1.71%	
77	14.97%	8.93%	8.54%	3.81%	7.64%	8.20%	16.20%	10.23%	11.08%	8.21%	12.20%	9.84%	8.87%	6.23%	
78	-6.75%	-2.92%	-5.12%	-5.95%	-4.31%	-3.17%	-3.37%	-4.06%	-4.12%	-3.74%	-4.89%	-5 54%	-7.25%	-6.23%	
79	3.73%	5.98%	-0.97%	-5.03%	-2.46%	4.44%	16.58%	14.89%	2.93%	1.13%	6.98%	7.37%	2.25%	4.19%	
80	9.39%	6.64%	12.08%	7.29%	7.80%	8.11%	1.20%	1.81%	8 29%	8.39%	6.95%	5 55%	7.55%	8.50%	
81															
82															
83															

rawdata | 1st 2 fund filters | **MF selection #1** | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 7.6



	A	B	C	D	E	F	G	H
1	This worksheet is for ca							1
2								
3		1 month	LCGE	LCGE				WT Wilm L
4		T-Bill	Large-Cap Growth Fu	Large-Cap Growth Fu				LCGE
5				minus				Large-Cap (
6		risk-free	Average	risk-free				
7		rate	Equal Wtd.	rate				
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18	01/31/1995	0.0047	0.0069672131147541	=C18-$B18				0 004
19	02/28/1995	0.0048416666666666	0.0362959016393442	=C19-$B19				0 0388
20	03/31/1995	0 0048333333333333	0.0294385245901639	=C20-$B20				0 0222
21	04/30/1995	0 004775	0.0230622950819672	=C21-$B21				0 0192
22	05/31/1995	0.004725	0.0311573770491803	=C22-$B22				0 0061
23	06/30/1995	0.00475	0.0514172131147541	=C23-$B23				0.061
24	07/31/1995	0.0045833333333333	0.052205737704918	=C24-$B24				0.0718
25	08/31/1995	0.0045683333333333	0.0050155737704918	=C25-$B25				0.0128
26	09/30/1995	0.0045083333333333	0.033444262295082	=C26-$B26				0.0262
27	10/31/1995	0.0043833333333333	-0.0084540983606557	=C27-$B27				-0.0394
28	11/30/1995	0.0044166666666666	0.0306270491803278	=C28-$B28				0 0367
29	12/31/1995	0.0044333333333333	-0.0040213114754098	=C29-$B29				-0.0019
30	01/31/1996	0.0043	0.0247131147540984	=C30-$B30				-0.0057
31	02/29/1996	0.0041833333333333	0.0238991803278689	=C31-$B31				0.0456
32	03/31/1996	0.0040583333333333	0.00255	=C32-$B32				0.026
33	04/30/1996	0.0041333333333333	0.0321959016393443	=C33-$B33				0.0565
34	05/31/1996	0.0041583333333333	0.0296311475409836	=C34-$B34				0.0306

Fig. 7.7

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

DZ1 =

	DZ	EA	EB	EC	ED	EE	EF	EG
1								
2								
3		=H3	=I3	=J3	=K3	=L3	=M3	=N3
4		=H4	=I4	=J4	=K4	=L4	=M4	=N4
5		=H5	=I5	=J5	=K5	=L5	=M5	=N5
6		minus	minus	minus	minus	minus	minus	minus
7		risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free
8		rate	rate	rate	rate	rate	rate	rate
9								
10								
11								
12								
13								
14								
15								
16								
17								
18		=H18-$B18	=I18-$B18	=J18-$B18	=K18-$B18	=L18-$B18	=M18-$B18	=N18-$B18
19		=H19-$B19	=I19-$B19	=J19-$B19	=K19-$B19	=L19-$B19	=M19-$B19	=N19-$B19
20		=H20-$B20	=I20-$B20	=J20-$B20	=K20-$B20	=L20-$B20	=M20-$B20	=N20-$B20
21		=H21-$B21	=I21-$B21	=J21-$B21	=K21-$B21	=L21-$B21	=M21-$B21	=N21-$B21
22		=H22-$B22	=I22-$B22	=J22-$B22	=K22-$B22	=L22-$B22	=M22-$B22	=N22-$B22
23		=H23-$B23	=I23-$B23	=J23-$B23	=K23-$B23	=L23-$B23	=M23-$B23	=N23-$B23
24		=H24-$B24	=I24-$B24	=J24-$B24	=K24-$B24	=L24-$B24	=M24-$B24	=N24-$B24
25		=H25-$B25	=I25-$B25	=J25-$B25	=K25-$B25	=L25-$B25	=M25-$B25	=N25-$B25
26		=H26-$B26	=I26-$B26	=J26-$B26	=K26-$B26	=L26-$B26	=M26-$B26	=N26-$B26
27		=H27-$B27	=I27-$B27	=J27-$B27	=K27-$B27	=L27-$B27	=M27-$B27	=N27-$B27
28		=H28-$B28	=I28-$B28	=J28-$B28	=K28-$B28	=L28-$B28	=M28-$B28	=N28-$B28
29		=H29-$B29	=I29-$B29	=J29-$B29	=K29-$B29	=L29-$B29	=M29-$B29	=N29-$B29
30		=H30-$B30	=I30-$B30	=J30-$B30	=K30-$B30	=L30-$B30	=M30-$B30	=N30-$B30
31		=H31-$B31	=I31-$B31	=J31-$B31	=K31-$B31	=L31-$B31	=M31-$B31	=N31-$B31
32		=H32-$B32	=I32-$B32	=J32-$B32	=K32-$B32	=L32-$B32	=M32-$B32	=N32-$B32
33		=H33-$B33	=I33-$B33	=J33-$B33	=K33-$B33	=L33-$B33	=M33-$B33	=N33-$B33
34		=H34-$B34	=I34-$B34	=J34-$B34	=K34-$B34	=L34-$B34	=M34-$B34	=N34-$B34

rawdata | 1st 2 fund filters | **MF selection #1** | MF selection #2 | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 7.8

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

A1 = This worksheet is for calculating rolling 2 year alphas

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	This workst	eet is for calculating r(		1	2	3	4	5	6	7	8	9	10	11	12	
2																
3		LCGE		WT Wilm I	Wp Stewa	WM:Growt	Wilshire T(	White Oak	WellsFarg	Vanguard I	Vanguard I	Value Line	Value Line	Universal (	United Var	U.
4		Large-Cap Growth Fu		LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	L(
5				Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	La
6		minus		minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	minus	m
7		risk-free		risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free	ris
8		rate		rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	rate	ra
9																
10																
11																
12																
13																
14																
15																
16																
17																
18	01/31/1995	0.23%		-0.07%	2.52%	0.64%	2.34%	1.49%	1.58%	2.33%	2.06%	-0.04%	-0.19%	-1.81%	-1.32%	
19	02/28/1995	3.15%		3.40%	1.95%	2.64%	2.92%	3.11%	2.02%	3.33%	3.32%	5.06%	4.03%	6.80%	1.38%	
20	03/31/1995	2.46%		1.74%	1.68%	1.56%	2.38%	2.47%	2.49%	1.90%	2.63%	1.84%	3.44%	1.49%	1.34%	
21	04/30/1995	1.83%		1.44%	2.13%	2.96%	1.67%	3.75%	2.14%	3.22%	2.19%	1.99%	1.19%	2.85%	2.27%	
22	05/31/1995	2.64%		0.14%	2.64%	3.32%	3.34%	4.57%	2.64%	3.04%	3.09%	2.48%	1.04%	2.08%	1.54%	
23	06/30/1995	4.67%		5.63%	3.06%	5.27%	3.46%	7.05%	6.77%	2.48%	3.30%	6.28%	3.26%	8.66%	7.55%	
24	07/31/1995	4.76%		6.72%	1.22%	6.03%	2.44%	6.60%	4.44%	1.65%	2.78%	7.31%	5.12%	4.23%	6.00%	
25	08/31/1995	0.05%		0.82%	-2.30%	0.27%	-0.34%	1.59%	0.45%	-0.83%	-0.77%	0.39%	0.90%	0.24%	0.00%	
26	09/30/1995	2.89%		2.17%	3.67%	2.51%	5.12%	4.46%	3.79%	5.18%	4.43%	2.99%	2.35%	2.92%	1.83%	
27	10/31/1995	-1.28%		-4.38%	2.25%	-3.12%	0.08%	4.62%	-3.52%	1.92%	0.39%	-1.04%	-1.59%	-2.59%	-1.11%	
28	11/30/1995	2.62%		3.23%	3.90%	4.02%	3.31%	1.55%	1.59%	3.49%	3.15%	3.04%	3.53%	2.76%	2.14%	
29	12/31/1995	-0.85%		-0.63%	-3.31%	0.04%	-0.48%	-3.30%	-3.53%	-0.14%	0.72%	-3.40%	-0.23%	0.74%	-4.33%	
30	01/31/1996	2.04%		-1.00%	3.75%	1.91%	3.29%	2.98%	2.21%	3.60%	3.36%	3.89%	2.18%	1.60%	2.22%	
31	02/29/1996	1.97%		4.14%	0.27%	4.43%	1.13%	3.25%	4.26%	2.65%	0.48%	2.67%	3.01%	1.02%	0.64%	
32	03/31/1996	-0.15%		2.19%	-0.05%	0.32%	-0.14%	-3.10%	0.72%	-0.73%	-0.83%	-0.48%	1.94%	1.01%	-2.73%	
33	04/30/1996	2.81%		5.24%	3.88%	4.97%	2.03%	4.95%	3.69%	1.43%	1.46%	2.66%	3.25%	4.00%	3.51%	
34	05/31/1996	2.55%		2.64%	4.23%	1.57%	3.97%	4.06%	2.76%	2.51%	3.18%	3.76%	2.15%	3.80%	0.61%	

rawdata / 1st 2 fund filters / MF selection #1 / **MF selection #2** / MF selection #3 / Tracking TR / Possible method to AC selection /

Fig. 8.1

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

DP1 = 117

	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED
1	117	118	119	120	121	122				1	2	3	4	5	6
2															
3	AIM Eq:Cl	AIM Eq:Bl	Aetna:Gro	Advantus I	Accessor:I	ABN AMRO:Growth;Com				WT:Wilm I	Wp Stewa	WM:Growt	Wilshire T(	White Oak	WellsFarg	Va
4	LCGE	LCGE	LCGE	LCGE	LCGE	LCGE				LCGE	LCGE	LCGE	LCGE	LCGE	LCGE	LC
5	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap Growth Funds				Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Large-Cap	Lar
6	minus	minus	minus	minus	minus	minus				Rolling	Rolling	Rolling	Rolling	Rolling	Rolling	Ro
7	risk-free	risk-free	risk-free	risk-free	risk-free	risk-free				2yr	2yr	2yr	2yr	2yr	2yr	2yr
8	rate	rate	rate	rate	rate	rate				Alpha	Alpha	Alpha	Alpha	Alpha	Alpha	Alp
9																
10																
11																
12																
13																
14																
15																
16																
17																
18	0 64%	2 23%	-0.37%	1.02%	1.83%	0.40%				1						
19	3.17%	2.41%	2.48%	3.04%	3.13%	4.37%				2						
20	3.75%	2.73%	3.69%	1.56%	2.50%	1.91%				3						
21	2.46%	2.73%	1.92%	0.24%	3.29%	2.04%				4						
22	3.04%	1.79%	2.66%	1.63%	3.84%	3.12%				5						
23	3 78%	2.29%	5.43%	4 01%	2.58%	3 67%				6						
24	4.44%	2.41%	5.75%	6.05%	2.88%	5.59%				7						
25	0.61%	-1.29%	1.71%	-0.61%	-1.30%	0.27%				8						
26	4.18%	4 21%	0.43%	1.35%	3.10%	2.31%				9						
27	-2.20%	-1.24%	-0.51%	-1.97%	0 92%	-2 65%				10						
28	2.57%	3.54%	3.05%	5.57%	2.35%	1.84%				11						
29	-0.83%	0.89%	-1.67%	-1 24%	-0.64%	-0.36%				12						
30	1.58%	1.31%	1.28%	1.53%	3.46%	2.19%				13						
31	1.55%	2.17%	3.43%	1.22%	1.45%	0.60%				14						
32	0.17%	1.01%	0.05%	-0.32%	-0.98%	-0.05%				15						
33	2.00%	1.47%	3.13%	2.24%	1.92%	2.61%				16						
34	1 84%	2.92%	1.96%	2 53%	1.03%	1 55%				17						

rawdata | 1st 2 fund filters | MF selection #1 | **MF selection #2** | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 8.2

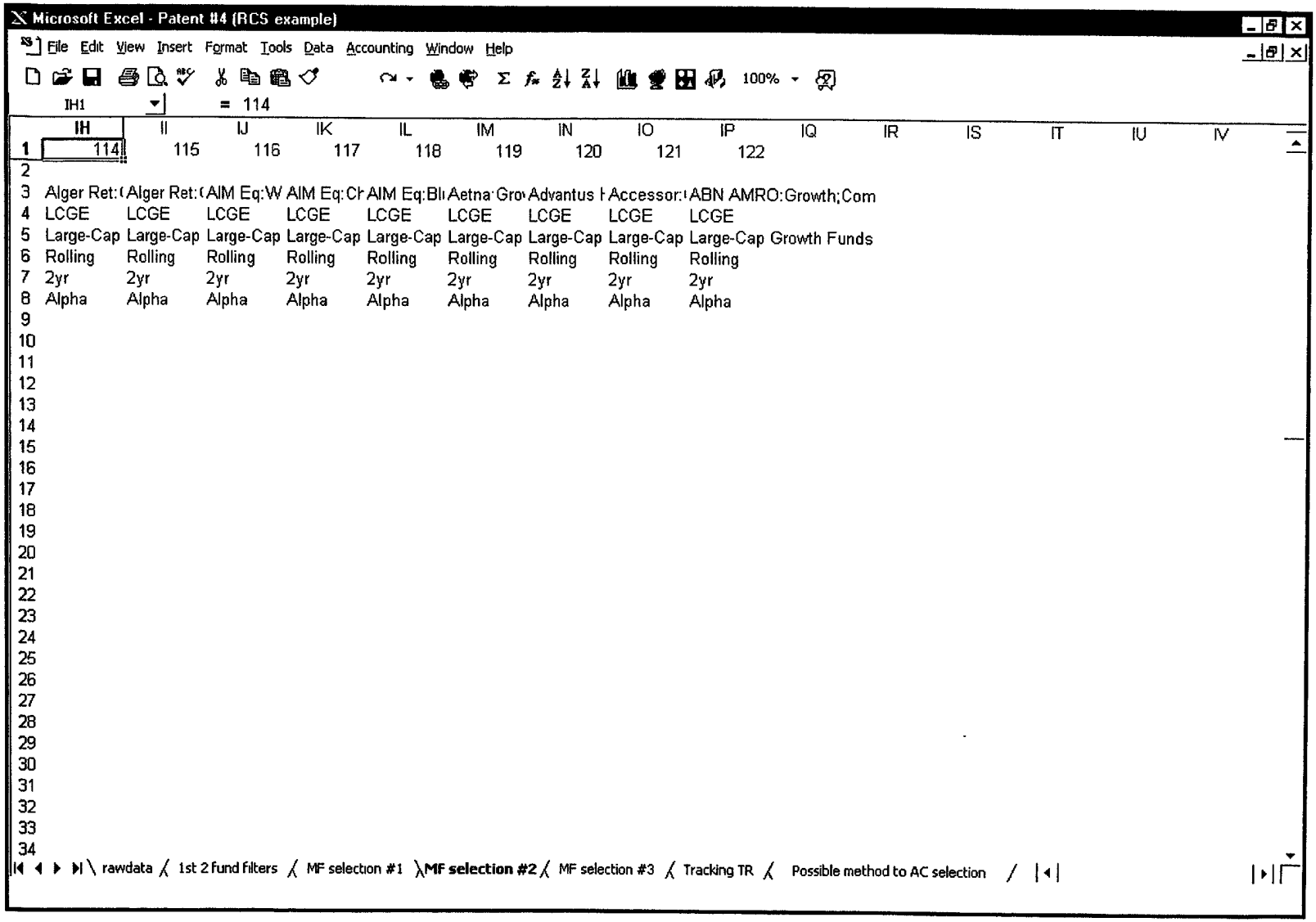

Microsoft Excel - Patent #4 (RCS example)
File Edit View Insert Format Tools Data Accounting Window Help
IH1
= 114
IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV
1 114 115 116 117 118 119 120 121 122
3 Alger Ret: Alger Ret: AIM Eq: W AIM Eq: Ch AIM Eq: Bl Aetna Gro Advantus I Accessor: ABN AMRO: Growth; Com
4 LCGE LCGE LCGE LCGE LCGE LCGE LCGE LCGE LCGE
5 Large-Cap Large-Cap Large-Cap Large-Cap Large-Cap Large-Cap Large-Cap Large-Cap Large-Cap Growth Funds
6 Rolling Rolling Rolling Rolling Rolling Rolling Rolling Rolling Rolling
7 2yr 2yr 2yr 2yr 2yr 2yr 2yr 2yr 2yr
8 Alpha Alpha Alpha Alpha Alpha Alpha Alpha Alpha Alpha
rawdata 1st 2 fund filters MF selection #1 MF selection #2 MF selection #3 Tracking TR Possible method to AC selection

Fig. 8.3

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

A50 = 09/30/1997

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
50	09/30/1997	4.99%		5.94%	4.77%	5.45%	4.54%	2.62%	6.54%	3.17%	4.65%	5.27%	4.25%	4.08%	3.57%
51	10/31/1997	-4.09%		-5.92%	-3.59%	-3.19%	-5.07%	-8.33%	-4.18%	-2.32%	-3.40%	-4.53%	-1.92%	-1.41%	-6.12%
52	11/30/1997	1.78%		0.47%	5.53%	-0.85%	5.27%	0.51%	2.66%	4.10%	5.00%	1.91%	-1.13%	2.16%	1.80%
53	12/31/1997	0.68%		1.46%	1.56%	-1.50%	0.28%	-1.49%	1.29%	1.05%	0.77%	-1.17%	-0.59%	1.75%	1.78%
54	01/31/1998	1.05%		-1.32%	3.30%	2.67%	2.66%	5.26%	2.20%	2.46%	2.94%	-0.23%	-2.87%	-0.38%	-0.01%
55	02/28/1998	7.41%		8.93%	8.47%	8.94%	8.19%	10.15%	7.51%	7.40%	6.49%	10.63%	6.28%	7.79%	6.01%
56	03/31/1998	4.16%		2.72%	4.64%	4.38%	3.26%	-0.05%	2.15%	3.68%	4.71%	2.80%	4.23%	2.20%	2.46%
57	04/30/1998	1.17%		0.50%	-2.89%	3.34%	-0.04%	4.19%	2.19%	1.96%	0.42%	2.12%	2.15%	1.70%	1.50%
58	05/31/1998	-3.07%		-5.44%	-3.00%	-3.47%	-2.83%	-5.47%	-3.64%	-1.95%	-2.43%	-3.24%	-4.79%	-4.23%	-1.67%
59	06/30/1998	5.83%		4.60%	7.14%	9.00%	6.79%	7.14%	8.69%	5.98%	6.71%	6.97%	4.17%	5.95%	4.78%
60	07/31/1998	-1.11%		-2.71%	-0.78%	-0.85%	-1.02%	-0.15%	-0.21%	-1.01%	-0.46%	-2.50%	-4.33%	-2.49%	-1.14%
61	08/31/1998	-16.87%		-17.26%	-15.11%	-17.49%	-13.96%	-23.91%	-17.10%	-14.53%	-13.45%	-17.83%	-17.49%	-18.13%	-15.23%
62	09/30/1998	7.09%		7.42%	8.55%	11.66%	6.76%	5.11%	8.99%	5.68%	6.29%	6.83%	8.57%	9.95%	6.58%
63	10/31/1998	5.92%		7.58%	3.28%	2.89%	7.66%	14.60%	6.95%	6.63%	8.02%	7.39%	4.21%	2.16%	4.28%
64	11/30/1998	6.63%		4.80%	6.89%	6.41%	6.84%	9.44%	9.19%	6.91%	6.44%	6.68%	5.03%	6.64%	8.07%
65	12/31/1998	10.43%		10.04%	6.39%	18.02%	7.84%	8.57%	11.61%	8.30%	7.30%	13.18%	12.03%	10.06%	9.41%
66	01/31/1999	6.50%		3.54%	5.44%	12.89%	5.93%	14.23%	7.82%	5.05%	5.80%	7.94%	6.66%	7.15%	6.81%
67	02/28/1999	-4.53%		-4.44%	-1.32%	-3.67%	-4.05%	-6.17%	-4.56%	-5.29%	-4.29%	-4.44%	-4.07%	-6.54%	-5.32%
68	03/31/1999	5.78%		3.63%	0.58%	11.78%	4.74%	5.16%	5.84%	3.22%	4.45%	6.09%	6.14%	6.22%	6.88%
69	04/30/1999	-0.15%		-0.73%	-1.63%	4.73%	-0.42%	-2.08%	0.08%	-1.16%	-0.57%	-0.98%	-0.56%	4.57%	-2.65%
70	05/31/1999	-3.66%		-3.11%	-6.46%	-5.97%	-3.58%	-2.86%	-3.86%	-3.70%	-3.31%	-5.06%	-4.51%	-1.94%	-4.84%
71	06/30/1999	6.92%		8.36%	5.57%	7.63%	6.63%	10.42%	8.45%	6.99%	6.90%	7.47%	7.15%	5.78%	10.06%
72	07/31/1999	-3.54%		-3.87%	-5.82%	-4.31%	-3.57%	-4.02%	-5.24%	-4.00%	-3.53%	-2.98%	-2.61%	-5.37%	-3.66%
73	08/31/1999	0.00%		0.22%	-0.18%	2.39%	2.16%	2.06%	-0.13%	0.40%	0.95%	-0.32%	-1.30%	-0.72%	-0.28%
74	09/30/1999	-1.25%		-1.60%	-1.24%	4.49%	-2.82%	-1.20%	-4.19%	-2.38%	-2.09%	-1.75%	-1.73%	-4.59%	0.30%
75	10/31/1999	6.69%		7.83%	6.69%	7.02%	7.61%	10.12%	8.24%	8.26%	6.51%	5.90%	4.64%	3.53%	5.84%
76	11/30/1999	5.21%		6.96%	-1.01%	10.53%	2.59%	4.90%	3.27%	2.87%	3.87%	4.69%	4.77%	2.97%	6.67%
77	12/31/1999	11.52%		21.27%	4.25%	19.32%	11.20%	8.51%	10.58%	6.66%	7.37%	7.53%	5.90%	4.06%	14.83%
78	01/31/2000	-4.27%		-5.35%	-5.07%	-0.27%	-7.27%	0.56%	-2.98%	-6.00%	-7.11%	-6.30%	-6.23%	-4.47%	-3.20%
79	02/29/2000	6.37%		13.70%	-5.41%	11.83%	3.03%	8.70%	1.44%	1.70%	1.63%	1.39%	1.42%	0.23%	15.18%
80	03/31/2000	5.14%		5.34%	14.17%	1.29%	7.75%	8.52%	11.34%	8.57%	8.75%	10.57%	8.63%	8.42%	4.67%
81															
82															
83															

rawdata / 1st 2 fund filters / MF selection #1 / **MF selection #2** / MF selection #3 / Tracking TR / Possible method to AC selection

Fig. 8.4

09280" 22584960

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

DP50 = 5.5325%

	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED
50	5.53%	5.47%	5.35%	3.87%	4.71%	3.73%		16.34%		0.26%	0.47%	-0.54%	0.43%	0.40%	-0.10%
51	-4.83%	-4.05%	-5.54%	-4.44%	-3.77%	-3.32%		16.48%		0.30%	0.28%	-0.39%	0.30%	-0.10%	0.04%
52	1.31%	3.27%	-0.06%	4.97%	4.99%	1.66%		15.02%		0.22%	0.38%	-0.55%	0.41%	-0.10%	0.11%
53	-0.16%	1.19%	-1.61%	3.53%	0.25%	0.39%		12.86%		0.25%	0.55%	-0.69%	0.38%	-0.10%	0.26%
54	0.22%	0.79%	1.24%	0.27%	3.14%	1.15%		12.48%		0.27%	0.57%	-0.61%	0.39%	0.06%	0.31%
55	5.79%	6.45%	8.69%	6.99%	6.83%	8.25%		14.10%		0.22%	0.69%	-0.69%	0.45%	0.03%	0.22%
56	4.21%	4.17%	5.53%	4.08%	4.07%	4.07%		13.08%		0.06%	0.74%	-0.72%	0.43%	-0.01%	0.10%
57	-0.49%	1.35%	3.13%	-0.50%	-0.58%	-0.18%		14.53%		-0.06%	0.51%	-0.70%	0.40%	0.06%	0.11%
58	-3.12%	-2.73%	-3.28%	-2.62%	-1.58%	-2.74%		15.93%		-0.20%	0.39%	-0.67%	0.36%	-0.05%	0.09%
59	4.54%	4.23%	4.64%	7.82%	7.51%	5.54%		14.93%		-0.12%	0.38%	-0.44%	0.30%	-0.06%	0.16%
60	-0.28%	-1.19%	-1.32%	-0.62%	-0.54%	-1.68%		13.22%		-0.16%	0.18%	-0.37%	0.21%	-0.30%	0.12%
61	-16.77%	-15.56%	-17.72%	-15.51%	-14.08%	-17.08%		11.66%		-0.31%	0.20%	-0.50%	0.49%	-0.27%	0.35%
62	4.78%	5.31%	9.44%	8.85%	7.36%	4.15%		12.76%		-0.30%	0.23%	-0.35%	0.48%	-0.42%	0.33%
63	7.99%	7.71%	3.10%	4.61%	6.88%	6.44%		10.62%		-0.12%	0.22%	-0.28%	0.54%	-0.19%	0.42%
64	6.19%	6.05%	5.20%	6.28%	6.97%	7.17%		10.62%		-0.18%	0.25%	-0.20%	0.50%	-0.34%	0.50%
65	8.83%	7.84%	12.53%	7.98%	10.52%	9.76%		13.17%		-0.34%	0.09%	-0.15%	0.48%	-0.42%	0.45%
66	4.94%	3.50%	5.87%	2.85%	6.98%	1.34%		14.34%		-0.32%	0.18%	0.09%	0.42%	-0.27%	0.43%
67	-4.12%	-3.91%	-5.02%	-6.07%	-4.55%	-3.81%		13.70%		-0.24%	0.26%	0.29%	0.35%	-0.13%	0.45%
68	6.41%	4.56%	5.22%	5.09%	5.72%	2.25%		16.88%		-0.32%	0.12%	0.50%	0.33%	-0.31%	0.54%
69	1.07%	0.74%	-0.03%	-0.55%	-1.57%	1.03%		15.61%		-0.31%	-0.08%	0.89%	0.21%	-0.35%	0.47%
70	-3.05%	-3.31%	-2.79%	-4.06%	-4.50%	-3.45%		14.49%		-0.42%	-0.18%	0.81%	0.21%	-0.27%	0.46%
71	6.88%	5.91%	8.40%	7.84%	5.97%	6.71%		13.34%		-0.46%	-0.19%	0.83%	0.20%	-0.21%	0.46%
72	-4.13%	-3.15%	-1.46%	-3.68%	-3.93%	-5.81%		13.62%		-0.40%	-0.29%	0.88%	0.19%	-0.26%	0.41%
73	-0.44%	-1.17%	-0.65%	0.81%	-0.48%	-2.39%		14.40%		-0.61%	-0.15%	0.97%	0.39%	-0.28%	0.42%
74	-1.68%	-1.38%	-2.63%	-1.97%	-2.21%	-3.06%		17.45%		-0.65%	-0.17%	1.26%	0.31%	-0.12%	0.25%
75	5.54%	6.63%	4.35%	4.89%	6.90%	7.92%		18.92%		-0.54%	-0.15%	1.16%	0.44%	0.08%	0.26%
76	3.79%	2.82%	3.85%	3.94%	2.83%	1.71%		21.04%		-0.43%	-0.51%	1.45%	0.22%	0.09%	0.15%
77	11.08%	8.21%	12.20%	9.84%	8.87%	6.23%		27.37%		-0.32%	-0.67%	1.69%	0.25%	0.09%	0.09%
78	-4.12%	-3.74%	-4.89%	-5.54%	-7.25%	-6.23%		24.65%		-0.24%	-0.86%	1.89%	-0.02%	0.25%	0.14%
79	2.93%	1.13%	6.98%	7.37%	2.25%	4.19%		28.06%		-0.05%	-1.26%	2.02%	-0.15%	0.24%	-0.02%
80	8.29%	8.39%	6.95%	5.55%	7.55%	8.50%		27.95%		0.01%	-0.97%	1.87%	-0.03%	0.51%	0.26%
81															
82															
83															

rawdata / 1st 2 fund filters / MF selection #1 / **MF selection #2** / MF selection #3 / Tracking TR / Possible method to AC selection

Fig. 8.5

Microsoft Excel - Patent #4 (RCS example)

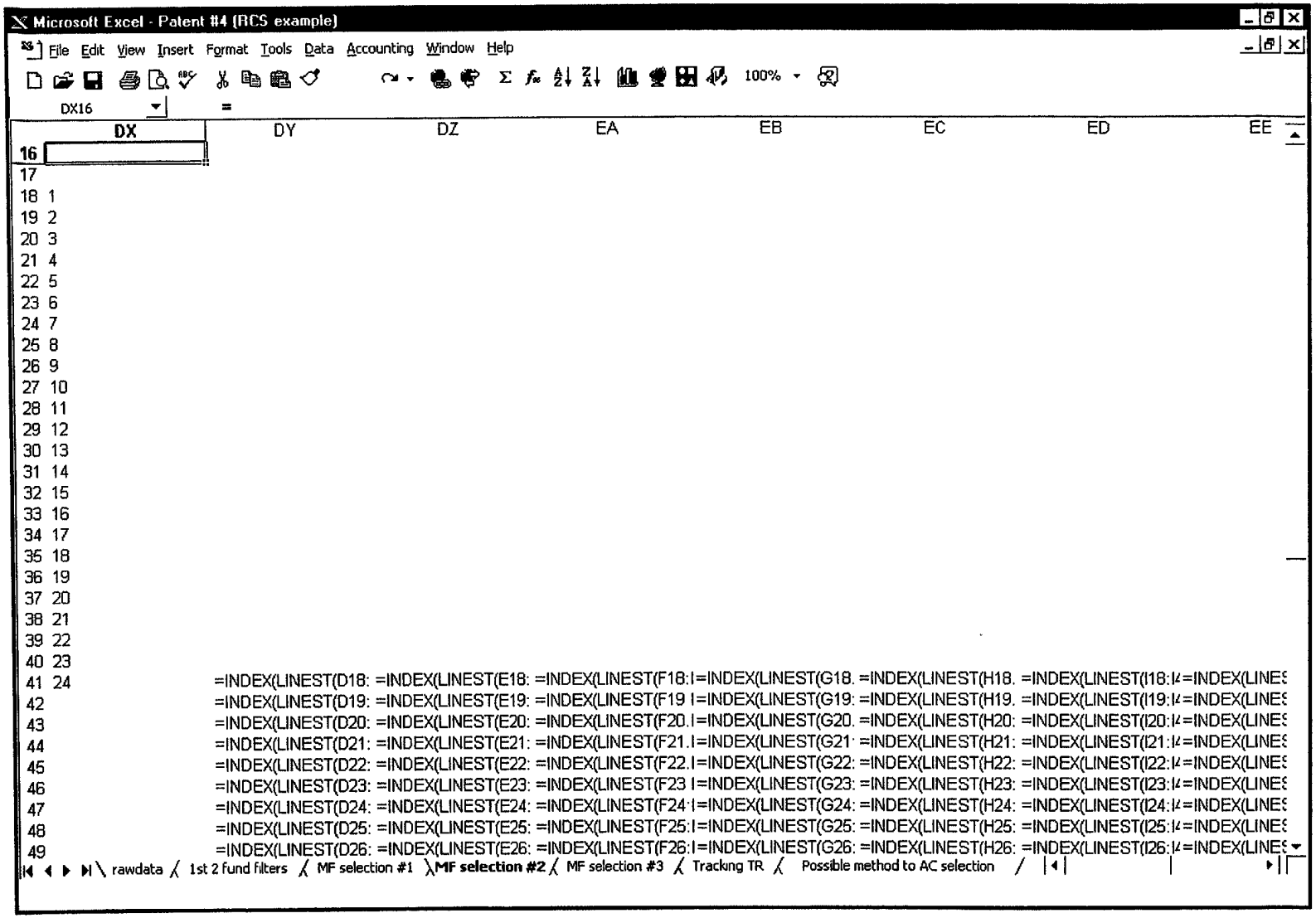
File Edit View Insert Format Tools Data Accounting Window Help

IH50 = =INDEX(LINEST(DM27:DM50,$B27:$B50),2)

	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV
50	-0.49%	-1.06%	-0.11%	0.04%	0.48%	0 24%	-0.26%	0.34%	0 14%						
51	-0 42%	-0 90%	-0 09%	0.04%	0.46%	0 10%	-0.24%	0.23%	0.22%						
52	-0 36%	-0 82%	-0.08%	0.02%	0 48%	0 01%	-0 22%	0 36%	0 24%						
53	-0.41%	-0.81%	-0.04%	-0.02%	0.43%	-0.05%	-0.08%	0.34%	0 22%						
54	-0.46%	-0.78%	-0 03%	-0.04%	0 44%	-0.01%	-0.09%	0.37%	0 21%						
55	-0 43%	-0.90%	-0 06%	-0 05%	0 43%	-0 04%	-0 07%	0 39%	0 30%						
56	-0.33%	-0 81%	-0.10%	-0.06%	0.39%	-0.01%	-0.07%	0.45%	0 32%						
57	-0.35%	-0.89%	-0.07%	-0.10%	0 44%	0.07%	-0.12%	0.40%	0 26%						
58	-0 18%	-0.75%	-0.01%	-0.09%	0 42%	0 08%	-0 09%	0 51%	0.27%						
59	-0.06%	-0.47%	0.01%	-0 16%	0.32%	0.09%	-0.08%	0.51%	0.25%						
60	0.31%	-0.20%	0.00%	-0.14%	0.22%	-0 11%	-0 02%	0.49%	0.12%						
61	0.30%	-0.04%	-0.13%	-0.19%	0.25%	-0.11%	0.10%	0.63%	-0.02%						
62	0 32%	0.15%	-0 15%	-0 24%	0 19%	0 04%	0 13%	0.68%	-0 10%						
63	0.31%	0.15%	-0.17%	-0.16%	0.21%	-0.12%	0.16%	0.65%	-0.19%						
64	0.33%	0.31%	-0.14%	-0 17%	0.21%	-0.16%	0 10%	0 64%	-0.14%						
65	0 41%	0.42%	-0.09%	-0.27%	0.17%	-0 17%	0 12%	0.71%	-0.14%						
66	0.40%	0.50%	-0.09%	-0.30%	0.10%	-0 22%	0.07%	0 70%	-0.28%						
67	0.55%	0.98%	-0 18%	-0.37%	0.00%	-0.22%	-0.14%	0.55%	-0.30%						
68	0 48%	1 00%	-0.17%	-0 28%	0.02%	-0 22%	-0 02%	0.56%	-0.50%						
69	0.50%	1.21%	-0.14%	-0.21%	0.01%	-0.18%	-0 12%	0.41%	-0.43%						
70	0.44%	1.19%	-0.07%	-0.22%	0.01%	-0.11%	-0.15%	0.36%	-0.43%						
71	0 46%	1.11%	-0.09%	-0 21%	-0 03%	-0 07%	-0 13%	0.30%	-0 36%						
72	0.43%	1.04%	-0.06%	-0.24%	-0.05%	0.01%	-0 09%	0.30%	-0.46%						
73	0.26%	1.16%	-0.17%	-0.25%	-0.04%	-0.09%	0.04%	0.38%	-0.57%						
74	0 29%	1 30%	-0.12%	-0.30%	-0.09%	-0 16%	0 03%	0.33%	-0.62%						
75	0.31%	1.35%	-0.15%	-0.28%	-0.05%	-0.17%	0.02%	0.35%	-0.61%						
76	0.36%	1.59%	-0.09%	-0.30%	-0.18%	-0.15%	-0 15%	0.14%	-0.73%						
77	0.37%	1.79%	-0.10%	-0.27%	-0.24%	-0.04%	-0.30%	0.13%	-0.81%						
78	0 44%	1.90%	-0.06%	-0.24%	-0 24%	-0.07%	-0.36%	-0 16%	-0 95%						
79	0.37%	2.25%	0.22%	-0.30%	-0.38%	-0.09%	-0.32%	-0.27%	-1.04%						
80	0.42%	2.09%	0.12%	-0.19%	-0.26%	-0.08%	-0.30%	-0.18%	-0.92%						
81															
82															
83															

rawdata | 1st 2 fund filters | MF selection #1 | **MF selection #2** | MF selection #3 | Tracking TR | Possible method to AC selection

Fig. 8.6


Microsoft Excel - Patent #4 (RCS example)
File Edit View Insert Format Tools Data Accounting Window Help
100%
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DX DY DZ EA EB EC ED EE
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24 7
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rawdata 1st 2 fund filters MF selection #1 MF selection #2 MF selection #3 Tracking TR Possible method to AC selection

Fig. 8.7

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

A1 = This worksheet is for selecting MFs based on alphas calculated in the previous sheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	This worksheet is for selecting MFs based on alphas calculated in the previous sheet															
2																
3				12/31/1996	Rank	03/31/1997	Rank	06/30/1997	Rank	09/30/1997	Rank	12/31/1997	Rank	03/31/1998	Rank	06/30/199E
4																
5	1	WT:Wilm Lg Cap Gro;Instl		-0.11%	78	-0.16%	78	0.03%	67	0.26%	33	0 25%	32	0.06%	59	-0.12%
6	2	Wp Stewart Growth Fund		0.68%	4	0.49%	10	0.55%	10	0.47%	13	0 55%	6	0.74%	3	0 38%
7	3	WM:Growth,A		-0.10%	75	-0.28%	92	-0.49%	106	-0.54%	110	-0.69%	115	-0.72%	118	-0.44%
8	4	Wilshire Tgt:LC Gr;Inv		0 49%	18	0.48%	12	0.57%	8	0.43%	18	0 38%	19	0.43%	16	0 30%
9	5	White Oak Growth Stock		0.66%	5	0.56%	6	0.44%	18	0.40%	20	-0 10%	79	-0.01%	66	-0.06%
10	6	WellsFargo Lg Co Gr;I		-0.05%	71	-0.13%	77	-0.10%	73	-0.10%	75	0.26%	29	0.10%	56	0 16%
11	7	Vanguard US Growth		0.74%	3	0.62%	3	0.62%	7	0.39%	22	0.35%	21	0.37%	24	0.34%
12	8	Vanguard Growth Indx;Inv		0.59%	10	0.58%	5	0.70%	2	0.55%	7	0.53%	8	0.68%	4	0.60%
13	9	Value Line Lvge Growth		-0.06%	72	-0.20%	83	-0.24%	85	-0.20%	84	-0.18%	88	-0.34%	99	-0.16%
14	10	Value Line Fund		0.28%	34	0.13%	50	0.20%	49	0.24%	37	0.13%	50	-0.18%	84	-0.32%
15	11	Universal Capital Growth		-0.63%	111	-0.40%	103	-0.51%	109	-0.47%	107	-0.23%	95	-0.38%	102	-0.22%
16	12	United Vanguard Fund;A		-0.89%	119	-0.42%	107	-0.56%	111	-0.67%	113	-0 57%	110	-0.53%	112	-0.31%
17	13	UAM:Sirach Growth;Inst		0.32%	30	0.33%	29	0.36%	26	0.41%	19	0.57%	4	0.44%	14	0.40%
18	14	Turner Gro Equity		-0.25%	88	-0.21%	85	-0.14%	79	0.09%	61	0.01%	65	-0.03%	68	-0.13%
19	15	Trainer Worthm:First Mut		0.59%	11	0.48%	11	0.40%	23	0.27%	32	0.25%	30	-0.03%	69	-0.51%
20	16	TCW Galileo:Sel Eq;Instl		-0.37%	97	-0.32%	96	-0.42%	98	-0.40%	100	-0.19%	89	-0.34%	98	-0.29%
21	17	Target:Large Cap Growth		-0.35%	94	-0.53%	112	-0.52%	110	-0.23%	88	-0.55%	109	-0.39%	104	-0.30%
22	18	SunAmerica:Blue Chp;A		-0.41%	102	-0.20%	82	-0.05%	70	-0.09%	74	-0.17%	85	-0.20%	86	-0.06%
23	19	Strong Total Return		-0.33%	93	-0.30%	95	-0 25%	87	-0.24%	89	-0 19%	90	-0.30%	93	-0.08%
24	20	Stein Roe Growth Stock		0.36%	27	0.22%	40	0.35%	28	0.15%	52	0.22%	37	0.14%	48	0.12%
25	21	SS Research:Growth;S		-0.92%	120	-0.89%	121	-1 20%	121	-1.11%	121	-1.01%	121	-1.19%	122	-1.54%
26	22	Spectra Fund		-0.20%	84	0.09%	55	-0.30%	89	-0.46%	106	-0.22%	93	-0.27%	92	-0.18%
27	23	Sit Large Cap Growth		0.10%	55	0.13%	47	0.25%	40	0.11%	58	0.33%	25	0.41%	19	0.40%
28	24	Seligman Growth;A		0.08%	56	0.09%	53	0.14%	56	-0.12%	77	-0.20%	92	-0.19%	85	-0.23%
29	25	SEI Instl:Lg Cap Gr,A		0.26%	37	0.24%	36	0.32%	30	0.37%	24	0.24%	34	0.31%	32	0.38%
30	26	Scudder Large Co Gro;Scd		0.07%	57	-0.07%	71	0.10%	63	0.03%	66	0.09%	56	0.05%	60	0.04%
31	27	Saratoga:Lg Cap Gro;I		-0.54%	107	-0.35%	98	-0.35%	95	-0.44%	105	-0.09%	77	0.01%	63	-0.04%
32	28	Rydex:OTC Fund;Inv		0.63%	6	0.47%	15	0.19%	51	0.43%	17	0.11%	55	0.35%	26	0.24%
33	29	Reynolds:Opportunity		-0.98%	121	-0.89%	120	-0.92%	118	-1.00%	119	-1.12%	122	-1.02%	121	-0.84%
34	30	Reynolds:Blue Chip Gro		0.22%	44	0.40%	20	0 30%	33	0.24%	40	0 30%	27	0.50%	8	0.48%

rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | **MF selection #3** | Tracking TR | Possible method to AC selection

Fig. 9.1

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

M1 =

	Rank 03/31/1998		Rank 06/30/1998		Rank 09/30/1998		Rank 12/31/1998		Rank 03/31/1999		Rank 06/30/1999		Rank 09/30/1999		Rank 12/31/1999	
1																
2																
3																
4																
5	32	0.06%	59	-0.12%	80	-0.30%	100	-0.34%	105	-0 32%	103	-0.46%	111	-0.65%	115	-0.32%	94
6	6	0.74%	3	0.38%	22	0.23%	31	0.09%	52	0.12%	48	-0.19%	87	-0 17%	88	-0.67%	112
7	115	-0.72%	118	-0.44%	106	-0.35%	105	-0.15%	89	0 50%	16	0.83%	5	1.26%	5	1.69%	4
8	19	0.43%	16	0.30%	30	0.48%	14	0 48%	11	0 33%	24	0 20%	31	0.31%	24	0 25%	29
9	79	-0.01%	66	-0.06%	72	-0.42%	108	-0.42%	107	-0 31%	102	-0 21%	90	-0.12%	81	0.09%	42
10	29	0.10%	56	0.16%	43	0.33%	20	0.45%	13	0.54%	13	0.46%	14	0.25%	29	0.09%	43
11	21	0.37%	24	0.34%	27	0.32%	21	0.34%	21	0.12%	47	0.02%	56	0 17%	33	-0.07%	60
12	8	0.68%	4	0.60%	5	0.77%	5	0.75%	3	0.54%	15	0 36%	17	0.46%	13	0.28%	25
13	88	-0 34%	99	-0 16%	85	-0.34%	104	-0.18%	94	0.08%	56	0.00%	62	-0 09%	69	-0.18%	78
14	50	-0.18%	84	-0.32%	100	-0.62%	111	-0.63%	114	-0.55%	114	-0.52%	114	-0 62%	114	-0.79%	117
15	95	-0.38%	102	-0.22%	87	0.06%	55	-0.13%	85	-0 24%	92	0.01%	60	-0.24%	97	-0.80%	118
16	110	-0.53%	112	-0.31%	97	-0.30%	101	-0.15%	91	-0.27%	97	-0 28%	98	-0.10%	75	0.06%	49
17	4	0.44%	14	0.40%	20	-0.02%	70	-0.05%	75	-0 31%	101	-0.34%	104	-0.42%	106	-0.75%	115
18	65	-0.03%	68	-0.13%	81	0.08%	51	0 15%	46	0 19%	37	0 18%	37	0 14%	40	0.31%	22
19	30	-0.03%	69	-0.51%	109	-0.44%	109	-0.13%	86	0.17%	39	0.27%	23	0.41%	16	0.10%	39
20	89	-0.34%	98	-0.29%	94	-0.01%	67	-0.06%	76	0.24%	29	0.22%	30	0.14%	38	0.17%	33
21	109	-0.39%	104	-0.30%	95	-0.31%	103	-0.32%	104	-0.23%	90	0.01%	59	0.06%	46	0.38%	18
22	85	-0.20%	86	-0.06%	74	-0.07%	75	-0.04%	70	-0.20%	86	-0.09%	79	-0.09%	68	-0.09%	64
23	90	-0.30%	93	-0.08%	77	0.07%	53	0.03%	58	0 15%	46	0.20%	32	0.21%	31	0.45%	16
24	37	0.14%	48	0.12%	49	-0.06%	74	-0.10%	83	0.04%	64	-0.12%	82	-0 06%	66	-0.30%	91
25	121	-1.19%	122	-1.54%	122	-1.50%	122	-1.10%	120	-1.14%	121	-0.79%	120	-0.70%	118	-0.50%	105
26	93	-0.27%	92	-0.18%	86	-0.14%	84	0.08%	54	0.22%	31	0 19%	33	0 33%	21	0.79%	11
27	25	0.41%	19	0.40%	21	0.12%	48	0.06%	56	-0.01%	70	-0.25%	95	-0 10%	72	-0.27%	89
28	92	-0.19%	85	-0.23%	90	-0.17%	89	-0.12%	84	-0.19%	85	-0.07%	74	0.09%	42	0.07%	47
29	34	0.31%	32	0 38%	23	0.35%	17	0.27%	29	0 22%	32	0.12%	40	0 03%	48	-0.08%	63
30	56	0.05%	60	0.04%	61	0.07%	52	0.21%	35	0 16%	41	-0.14%	86	-0.01%	55	-0.06%	59
31	77	0.01%	63	-0.04%	71	-0.05%	72	0.17%	41	0.16%	42	0.10%	43	0.08%	43	-0.15%	70
32	55	0.35%	26	0.24%	38	0.95%	2	0.74%	4	0.87%	3	1.10%	2	1.45%	1	2.28%	1
33	122	-1.02%	121	-0.84%	119	-0.18%	90	0.02%	60	0.55%	12	0.48%	13	0.67%	8	1.22%	7
34	27	0.50%	8	0.48%	10	0.67%	8	0.67%	8	0 67%	5	0.52%	12	0 67%	9	0.84%	9

rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | **MF selection #3** | Tracking TR | Possible method to AC selection

Fig. 9.2

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

AE1 =

	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU
1																	
2																	
3				12/31/1996	Rank	03/31/1997	Rank	06/30/1997	Rank	09/30/1997	Rank	12/31/1997	Rank	03/31/1998	Rank	06/30/1998	Rank
4																	
5	2	Wp Stewart Growth Fund		0 68%	4	0 49%	10	0.55%	10	0 47%	13	0.55%	6	0 74%	3	0.38%	22
6	3	WM:Growth;A		-0.10%	75	-0.28%	92	-0.49%	106	-0.54%	110	-0.69%	115	-0.72%	118	-0.44%	106
7	7	Vanguard US Growth		0.74%	3	0.62%	3	0.62%	7	0.39%	22	0.35%	21	0.37%	24	0.34%	27
8	8	Vanguard Growth Indx;Inv		0.59%	10	0.58%	5	0.70%	2	0.55%	7	0.53%	8	0.68%	4	0.60%	5
9	28	Rydex OTC Fund,Inv		0.63%	6	0.47%	15	0.19%	51	0.43%	17	0.11%	55	0.35%	26	0.24%	38
10	55	MFS Mass Invest Gro;A		-0.38%	101	0.08%	57	0.16%	54	0.34%	26	0.65%	2	0.82%	2	0.68%	2
11	58	Merrill Growth Fund;A		0.75%	2	0.75%	2	0.56%	9	0.83%	2	0.58%	3	0.30%	33	-0.40%	105
12	62	Magna:Growth & Income		0.59%	12	0.59%	4	0.63%	6	0.61%	4	0.37%	20	0.43%	15	0.44%	15
13	64	Legg Mason Value Tr;Nav		1.29%	1	1.35%	1	1.28%	1	1.36%	1	1.07%	1	1.09%	1	1.24%	1
14	67	Janus Twenty		0.36%	28	0.45%	16	0.38%	25	0.22%	45	0.29%	28	0.27%	34	0.65%	3
15	68	Janus Mercury		-0.21%	86	-0.29%	93	-0.49%	107	-0.59%	111	-0.60%	112	-0.61%	115	-0.28%	93
16	115	Alger Ret.Cap Apprec		-0.81%	116	-0.54%	114	-0 95%	119	-1.06%	120	-0.81%	119	-0.81%	119	-0.47%	108
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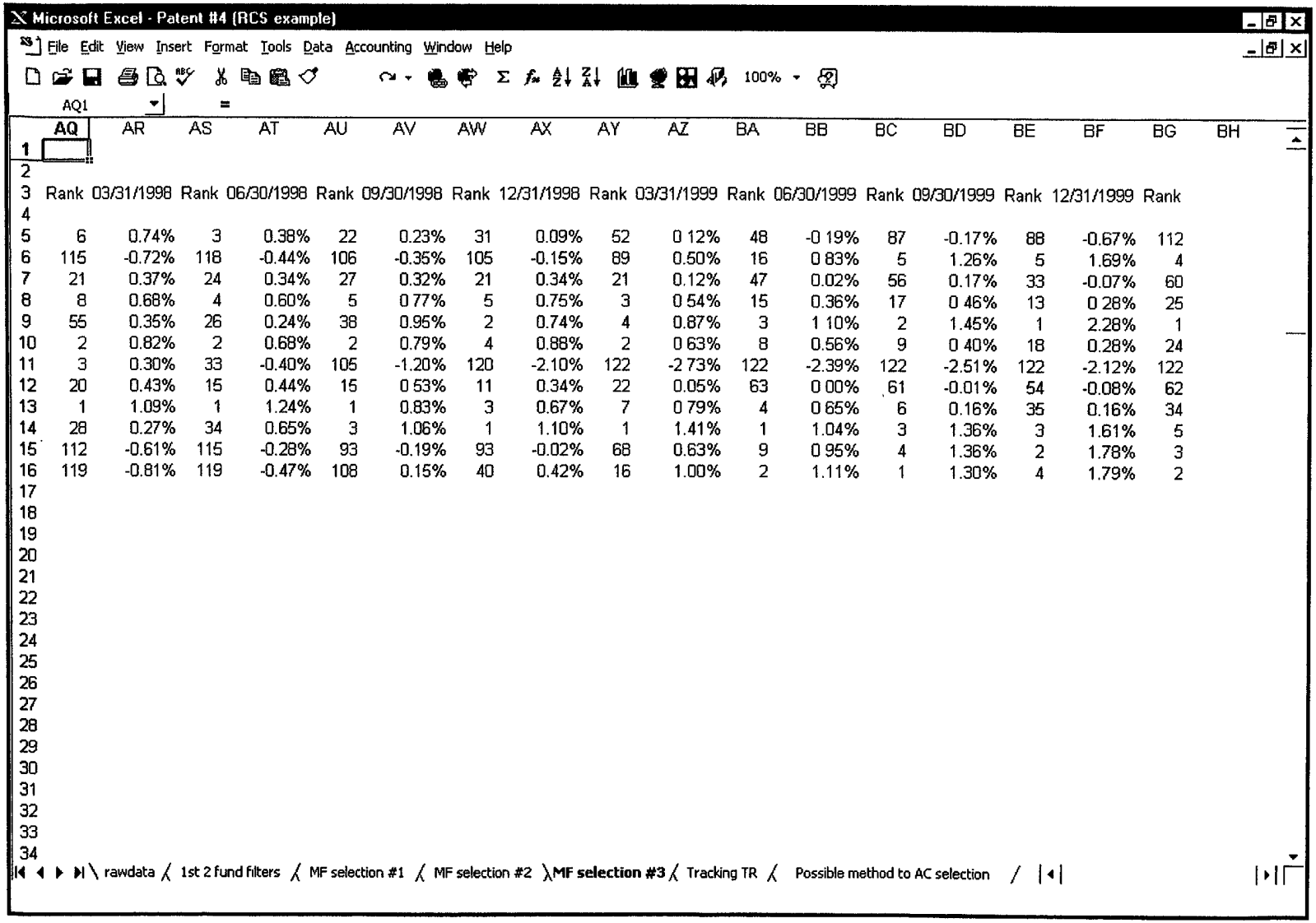
rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | **MF selection #3** | Tracking TR | Possible method to AC selection

Fig. 9.3



	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH
1																		
2																		
3	Rank	03/31/1998	Rank	06/30/1998	Rank	09/30/1998	Rank	12/31/1998	Rank	03/31/1999	Rank	06/30/1999	Rank	09/30/1999	Rank	12/31/1999	Rank	
4																		
5	6	0.74%	3	0.38%	22	0.23%	31	0.09%	52	0 12%	48	-0 19%	87	-0.17%	88	-0.67%	112	
6	115	-0.72%	118	-0.44%	106	-0.35%	105	-0.15%	89	0.50%	16	0 83%	5	1.26%	5	1.69%	4	
7	21	0.37%	24	0.34%	27	0.32%	21	0.34%	21	0.12%	47	0.02%	56	0.17%	33	-0.07%	60	
8	8	0.68%	4	0.60%	5	0 77%	5	0.75%	3	0 54%	15	0.36%	17	0 46%	13	0 28%	25	
9	55	0.35%	26	0.24%	38	0.95%	2	0.74%	4	0.87%	3	1 10%	2	1.45%	1	2.28%	1	
10	2	0.82%	2	0.68%	2	0.79%	4	0.88%	2	0 63%	8	0.56%	9	0 40%	18	0.28%	24	
11	3	0.30%	33	-0.40%	105	-1.20%	120	-2.10%	122	-2 73%	122	-2.39%	122	-2.51%	122	-2.12%	122	
12	20	0.43%	15	0.44%	15	0 53%	11	0.34%	22	0.05%	63	0 00%	61	-0.01%	54	-0.08%	62	
13	1	1.09%	1	1.24%	1	0.83%	3	0.67%	7	0 79%	4	0 65%	6	0.16%	35	0.16%	34	
14	28	0.27%	34	0.65%	3	1.06%	1	1.10%	1	1.41%	1	1.04%	3	1.36%	3	1.61%	5	
15	112	-0.61%	115	-0.28%	93	-0.19%	93	-0.02%	68	0.63%	9	0 95%	4	1.36%	2	1.78%	3	
16	119	-0.81%	119	-0.47%	108	0.15%	40	0.42%	16	1.00%	2	1.11%	1	1.30%	4	1.79%	2	
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Fig. 9.4

Microsoft Excel - Patent #4 (RCS example)

File Edit View Insert Format Tools Data Accounting Window Help

A95 = 91

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
95	91	Drey/Founders:Growth;F		-0.01%	65	0.24%	37	0.22%	45	0.07%	62	-0.10%	78	-0.14%	82	-0.14%
96	92	Delaware US Growth;Inst		-0 33%	92	-0.19%	81	-0.14%	78	-0.09%	73	0.14%	48	0.21%	40	0.10%
97	93	Concert Inv:Gro;1		0 14%	49	0.28%	32	0.25%	39	0.20%	46	0.23%	36	0.12%	51	0.27%
98	94	Columbia Growth		0 11%	53	0 11%	52	0.22%	47	0.22%	44	0.18%	44	0.25%	36	0.17%
99	95	CitiFunds LgCp Gro;A		-0.03%	69	-0.08%	72	0.13%	57	0.05%	64	0.09%	57	0.14%	49	0.13%
100	96	Chase:Equity Growth;Prm		-0.02%	67	0.09%	56	0.25%	41	0.25%	35	0.33%	24	0.31%	31	0.47%
101	97	CG Cap Mkts:Lrg Cap Gro		-0.02%	68	-0.03%	68	0.02%	68	-0.02%	69	0.03%	63	0.04%	61	-0.01%
102	98	Burnham Inv:Burnham;A		0.25%	40	0.23%	39	0.31%	32	0.29%	29	0.20%	40	0.19%	43	0.28%
103	99	Bridgeway:Social Resp		-0.14%	79	-0.06%	69	-0.03%	69	0.02%	68	0.07%	58	0.33%	27	0.09%
104	100	Boston 1784:Gro & Inc		0.12%	52	0.17%	45	0.06%	64	0.14%	55	0.20%	41	0.11%	55	0.15%
105	101	BlackRock:Lg Cp Gr;Inst		0 06%	60	0.05%	59	0.15%	55	0.09%	60	0.06%	60	0.12%	52	0.11%
106	102	Berger Growth & Income		0.10%	54	0.20%	42	0.11%	62	0.31%	28	0.17%	45	0.14%	47	0 04%
107	103	AXP:New Dimensions;A		0.43%	20	0.35%	27	0.32%	31	0.23%	41	0.18%	43	0.16%	46	0 02%
108	104	AXP:Growth Fund;A		0.16%	46	-0.01%	64	0.04%	66	0.03%	67	-0.35%	104	-0.49%	108	-0.52%
109	105	Atlas:Gro & Inc;A		0.27%	35	0.17%	44	0.23%	44	0.19%	49	0.24%	35	0.11%	53	0 10%
110	106	Armada:Equity Gro;I		0.37%	24	0.37%	23	0.49%	14	0.49%	11	0.49%	11	0.50%	9	0 36%
111	107	Arbor:OVB Cap App;A		-0.35%	95	-0.29%	94	-0.46%	102	-0.43%	102	-0.27%	99	-0.26%	90	-0.22%
112	108	Arbor.GoldenOak Gro;Inst		-0.58%	108	-0.53%	113	-0.49%	108	-0.13%	81	0.07%	59	-0.03%	67	0.08%
113	109	Amer Cent:AC Ultra,Inv		-0.86%	118	-0.48%	110	-0.58%	113	-0.75%	117	-0.74%	116	-0.61%	114	-0.55%
114	110	Amer Cent:AC Growth;Inv		-0.76%	114	-0.70%	117	-0 74%	116	-0.69%	114	-0 32%	102	-0.20%	87	-0.09%
115	111	Alliance Premier Gr;A		0.49%	17	0.38%	21	0.25%	38	0.16%	51	0.11%	54	0 24%	37	0.49%
116	112	Allg/Mont&Caldwell Gro;N		0 60%	9	0 52%	8	0.52%	12	0.72%	3	0.53%	9	0.38%	23	0.42%
117	113	Allg/Chicago Gro & Inc		0.62%	7	0.52%	9	0.64%	4	0.40%	21	0.41%	16	0.44%	13	0.34%
118	114	Alger Ret:Growth		-0.62%	110	-0.24%	88	-0.48%	105	-0.49%	108	-0.41%	105	-0.33%	97	-0.06%
119	115	Alger Ret:Cap Apprec		-0.81%	116	-0.54%	114	-0.95%	119	-1.06%	120	-0.81%	119	-0.81%	119	-0.47%
120	116	AIM Eq:Wngarten;Rtl A		-0.08%	74	-0.06%	70	-0.12%	75	-0.11%	76	-0.04%	70	-0.10%	77	0 01%
121	117	AIM Eq:Charter;Rtl A		0.24%	42	0.13%	49	0.12%	60	0.04%	65	-0.02%	68	-0.06%	70	-0.16%
122	118	AIM Eq:Blue Chip;Rtl A		0.51%	16	0.36%	24	0.47%	16	0.48%	12	0.43%	14	0.39%	22	0.32%
123	119	Aetna:Growth;I		0.36%	26	0.19%	43	0.17%	52	0.24%	39	-0.05%	71	-0.01%	65	0.09%
124	120	Advantus Horizon;A		-0.37%	98	-0.33%	97	-0.18%	81	-0.26%	92	-0.08%	73	-0.07%	73	-0.08%
125	121	Accessor:Growth;Adv		0.37%	25	0.38%	22	0.41%	22	0.34%	27	0.34%	23	0.45%	11	0.51%
126	122	ABN AMRO:Growth,Com		0.27%	36	0.31%	30	0.26%	36	0.14%	54	0.22%	38	0.32%	29	0.25%
127																
128																

rawdata | 1st 2 fund filters | MF selection #1 | MF selection #2 | **MF selection #3** | Tracking TR | Possible method to AC selection

Fig. 9.5

9.5

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

☒ Declaration Submitted with Initial Filing **OR** ☐ Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	KIHNJ40295
First Named Inventor	Kihn
COMPLETE IF KNOWN	
Application Number	/
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Momentum Investment Systems, Processes and Products

(Title of the Invention)

the specification of which
☒ is attached hereto
OR
☐ was filed on (MM/DD/YYYY) [ ] as United States Application Number or PCT International Application Number [ ] and was amended on (MM/DD/YYYY) [ ] (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	NO
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐
			☐	☐	☐

☐ Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	
		☐ Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

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I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number *(if applicable)*

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As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: ☒ Customer Number 021587 → [barcode]

OR

☐ Registered practitioner(s) name/registration number listed below

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

Given Name (first and middle [if any])	Family Name or Surname
John	Kihn

Inventor's Signature	John Kihn					Date	6/6/2000
Residence: City	West Windsor	State	NJ	Country	USA	Citizenship	USA
Post Office Address	1223 Jamie Brooks Lane						
Post Office Address							
City	West Windsor	State	NJ	ZIP	08550	Country	USA

☐ Additional inventors are being named on the ____supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto